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ABSTRACT

Project Word-Back, an exploratory followup study of 21 young deaf-blind (Rubella) children (6 to 9 years old), was conducted to establish a tentative reference source of information, obtain teacher estimates on selected aspects of the current functioning level of a sample of children, and provide basic data from which hypotheses may be formulated for further study and which can be used in program planning. Four instruments were developed and used for making a classroom observation, interviewing teachers and parents, and examining cumulative records. Data were collected regarding language and communication skills, cognitive development, social and emotional development, self help performance, perceptual development (auditory, tactile, and visual), and both gross and fine motor performance. Three indications from the tabulated data were: all of the deaf-blind (Rubella) children in the sample made functional gains; 10 of the 21 children made substantial gains in functioning level as well as unexpected school progress; the children in the older age group outperformed the children of the younger age group in reported functioning level gains since diagnostic school evaluations; parents reported that their children were making a great deal of progress in their parent school programs; and many parents believed that the progress was due to the availability of full-time public school programs for deaf-blind children. Suggestions for further areas of research with deaf-blind (Rubella) children included the processing of multiple sensory stimuli, the types of responses that can or should be required from the children in learning situations, and the effect of an appropriate peer model on children's performance. (Author/SW)

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PROJECT WORD-BACK

EXPLORATORY FOLLOW-UP STUDY ON DEAF-BLIND (RUBELLA) CHILDREN IN CALIFORNIA

Edward J. Scheffelin
Principal Investigator

U.S. DEPARTMENT OF EDUCATION
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Sacramento, California
William A. Blea, Ed.D.
Project Director

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PREFACE

This report is one of a series of workshops or research projects sponsored or funded by the Southwestern Region Deaf-Blind Center.

This report combined with others in the series, including workshops held for families of deaf-blind children, becomes a record which assumes the need for documentation in the broad area of services for the deaf-blind multihandicapped.

As an extension of the total series of projects planned or funded by the Center, this report should add to the knowledge of those working with deaf-blind children.

It is our pleasure to make this report available to you.

Dr. William A. Blea, Project Director
Southwestern Region Deaf-Blind Center
Sacramento, California 95814

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ABSTRACT

PROJECT WORD-BACK, an exploratory followup study of young deaf-blind (Rubella) children, was conducted by the Southwestern Region Deaf-Blind Center. The purpose was three-fold: 1) establish a tentative reference source of information, 2) obtain teacher estimates on selected aspects of the current functioning level of a sample of children, and 3) provide basic data from which hypotheses may be formulated for further study and which can be used in program planning. The study sample included 21 of the 43 children who met the sample selection criteria: 1) born in 1964 or 1966, 2) previously evaluated at one of the two State Diagnostic Schools, and 3) residing in California and attending a public school program. Representativeness was obtained by a stratified random selection procedure. Four instruments had been developed and were used for making a classroom observation, interviewing teachers and parents, and examining cumulative records. Data was collected on-site in May 1973, and covered language and communication skills, cognitive development, social and emotional development, self-help performance, perceptual development (auditory, visual and tactile), and both gross and fine motor performance. Three indications from the tabulated data are: 1) all of the deaf-blind (Rubella) children in the sample population made functional gains, 2) ten of the 21 children made substantial gains in functioning level as well as unexpected school progress, 3) the children in the older age group outperformed the children of the younger age group in reported functioning level gains since Diagnostic School evaluations. Parents reported that their children are making a great deal of progress in their

present school programs. Many parents believe that this progress is due to the availability of full-time public school programs for deaf-blind children. Suggestions for further research with deaf-blind (Rubella) children include: 1) the processing of multiple sensory stimuli, 2) the types of responses that can or should be required from the children in learning situations, and 3) the effect of an appropriate peer model on children's performance.

ACKNOWLEDGMENT

Appreciation is expressed to the children, to their parents and teachers, and to the school staffs conducting programs in which these deaf-blind (Rubella) children were enrolled. The special assistance of the teachers is deeply appreciated, recognizing the generosity in donating a large amount of their own free time, their diligence in responding thoughtfully to the detailed interview schedule, and their assiduous attention to the individual needs of their deaf-blind (Rubella) pupils. Gratitude is also due to the parents, natural and foster, of the 21 children for their cooperation with the study in permitting their children to participate and for their full, free, and frank information and opinions on their children and their educational progress.

Recognition is due to the citizens of California who, through their elected and appointed officials and their State School Fund, have provided public school programs for deaf-blind children. In this effort California has led the way with the passage of AB 1886 in 1971 which mandated programs for multihandicapped pupils under the Physically Handicapped Program.

To the Congress of the United States of America appreciation is due for its recognition of the needs of handicapped children and its movement, over the years, to match the need with resources such as Public Law 91-230, Title VI, Part C, Section 622, under which the Regional Deaf-Blind Centers operate.

PART I - INTRODUCTION

PROBLEM:

The development of educational programs for deaf-blind (Rubella) children residing in California and attending public school programs is hampered by the non-availability of systematically collected and organized information on the intellectual, social, and educational growth of this type of handicapped child.

BACKGROUND TO PROBLEM:

Public school programs throughout California for deaf-blind (Rubella) children are a relatively recent development in the steady progress toward accessible and appropriate educational opportunities for all individuals with exceptional needs. The present statewide study is the first of its kind, as far as could be determined in a search of the literature, although program descriptions are available from pioneering local educational agencies.

GENERAL PURPOSE:

The purpose of this exploratory follow-up study was to collect firsthand current data during May 1973 on a selected sample of deaf-blind (Rubella) children who had been evaluated at one of the two state Diagnostic Schools for Neurologically Handicapped Children, living in California, enrolled in a variety of public school programs, and born during the calendar years of 1964 and 1966. The purpose was also to organize and assemble the information obtained by interviewing the teachers and the natural or foster parents of these children, reviewing

their school records, and on-site classroom observations in order to establish a source of educational information on these children.

SPECIFIC OBJECTIVES:

The specific objectives of this study are:

1. To establish a reference source of information by tabulating the completed responses from the parent and teacher interview schedules, cumulative folder or school records, and classroom observations.
2. To obtain teacher estimates on selected aspects of the current functioning behavioral range of these deaf-blind (Rubella) children enrolled in a variety of public school programs throughout the State of California.
3. To organize this data in order to show the current placement, educational progress, and future program needs of these children as viewed by parents and teachers for use in further educational program planning.

It is expected that this source of basic information will provide the basis from which hypotheses may be formulated for further study.

SAMPLE SELECTION PROCEDURE:

The preliminary sample population of deaf-blind (Rubella) children was selected on the following basis: 1) deaf-blind (Rubella) children born during the non-contiguous years of 1964 and 1966, 2) residing in the State of California and attending a public school program, and 3) previously evaluated at one of the two State Diagnostic Schools

for Neurologically Handicapped Children.

Only those children who had been evaluated at the State Diagnostic Schools were considered because extensive psychological and educational assessments had been completed as part of the total evaluation of these children. This psychological assessment would provide a basis from which to measure the educational and functional growth from the time of assessment to May 1973. Only those children born during the non-contiguous years of 1964 and 1966 were considered in order to have two different age groups for future comparison and potential for further followup. Other years were not considered because there were too few deaf-blind (Rubella) children born during any single year before 1964 or after 1966 who had also been evaluated at a Diagnostic School.

There were a total of 21 deaf-blind (Rubella) children born during 1964 and 22 born in 1966 who had been evaluated at the Diagnostic Schools. It was determined that half of each age group would be selected as the final target population.

The Cattell Infant Intelligence Scale (Mental Age Score) was used as a common dimension of functioning along which every potential subject could be arrayed, because nearly all of the children had obtained a reportable score on this measure. The mental age scores were plotted on a graph using time as the ordinate (X) axis and functioning level (MA score) as the abscissa (Y) axis. A "change" line was drawn from time of birth on the X axis (Zero functioning level) to the functioning level on the Y axis (MA score) at the time of the Diagnostic School evaluation. The slope of the "change" line represents the assumed rate of functional growth of a child from birth to time of evaluation.

1964 STRATIFIED RANDOM SAMPLE GROUP

Projected Functioning Levels Based on Measured Mental Age Scores

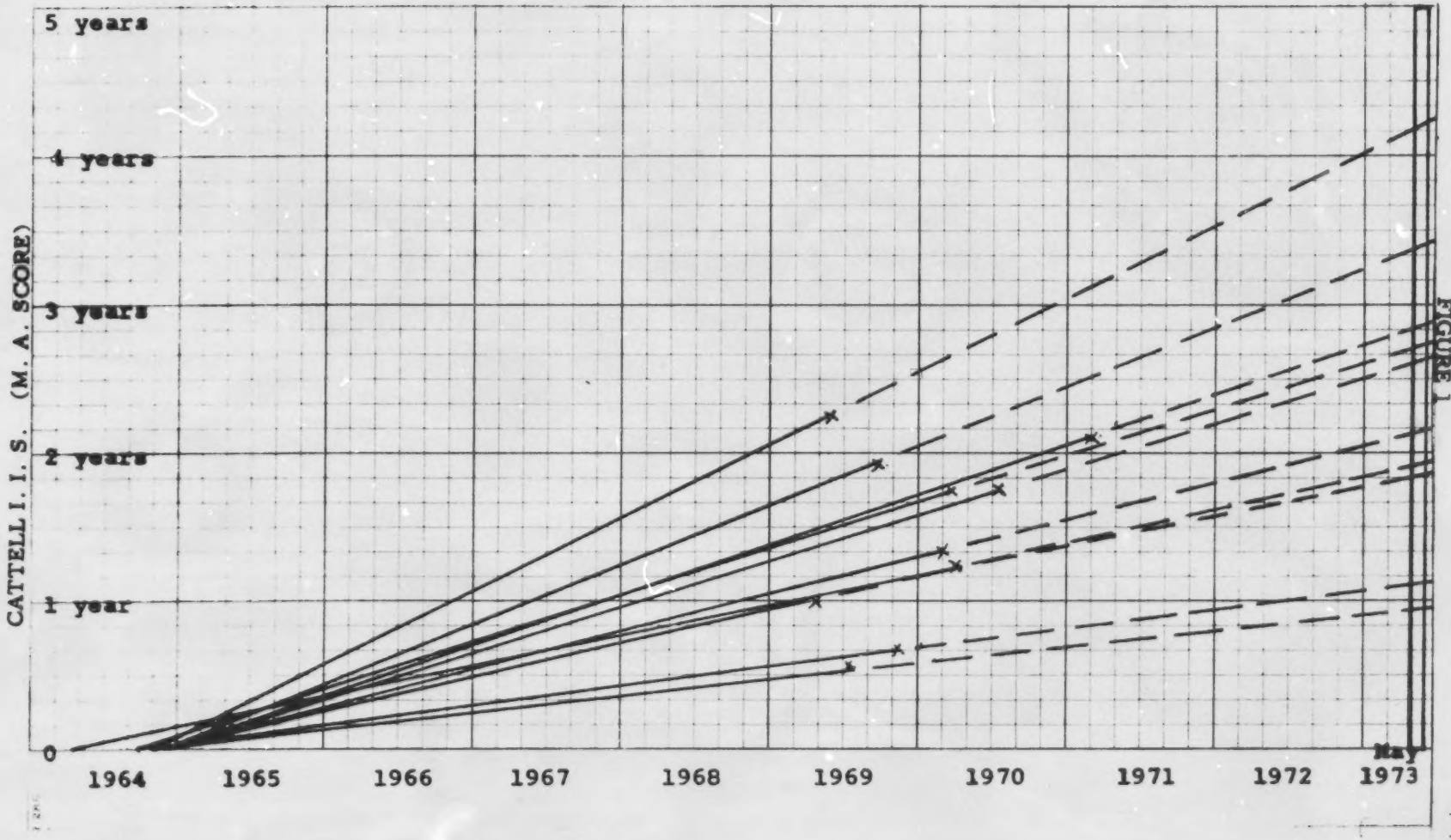


FIGURE 1

Time from birth to May 1973

1966 STRATIFIED RANDOM SAMPLE GROUP

Projected Functioning Levels Based on Measured Mental Age Scores

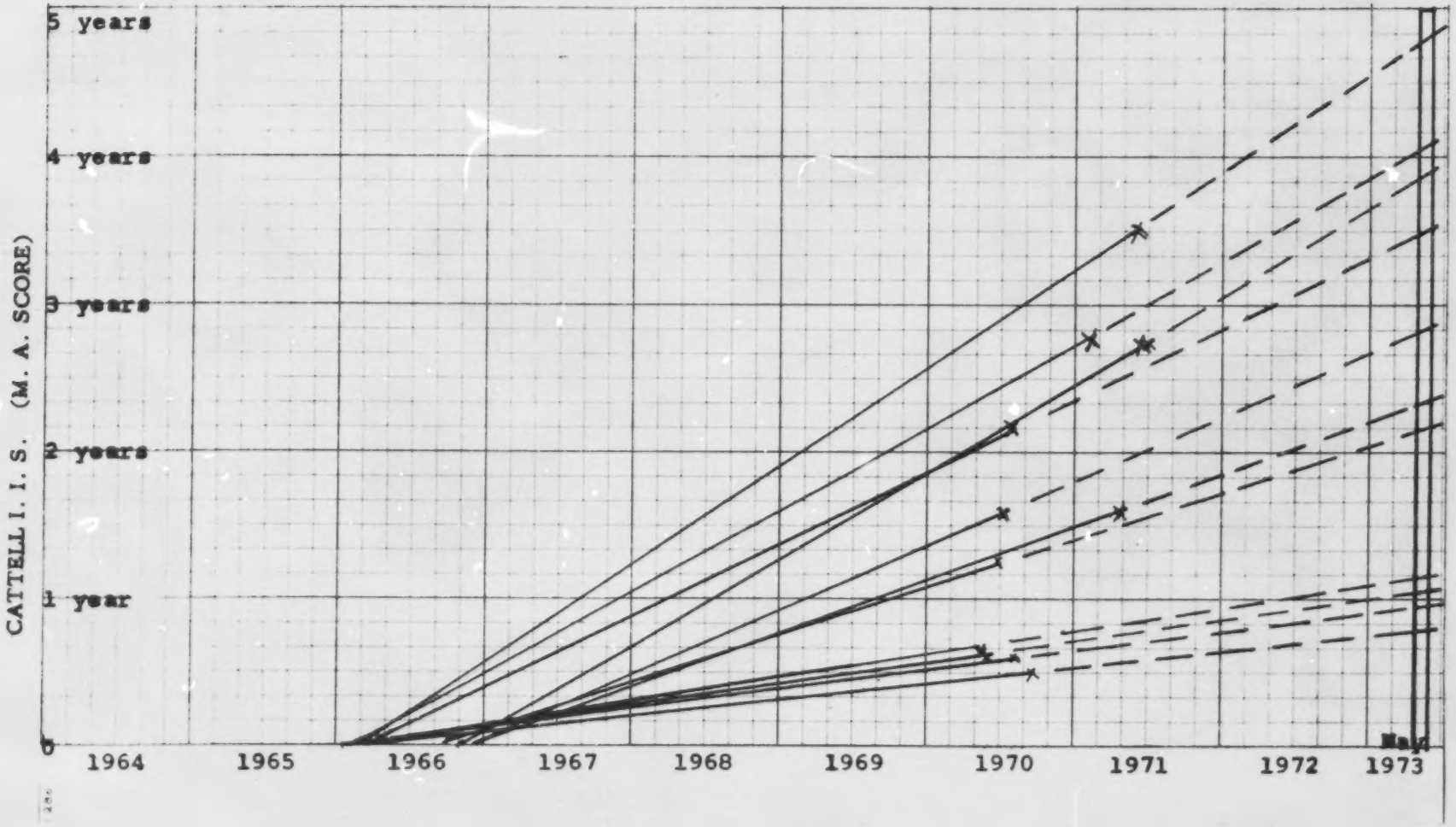


FIGURE 2

Time from birth to May 1973

Each "change" line was then extended, using the same slope, from the time of the child's evaluation to May 1973 on the X axis. Assuming the same rate of change, the point of interception of the extended "change" line and May 1973 would show the projected May 1973 functioning level of that child. (See Part II for an expanded discussion of "change line".)

Representativeness along the May 1973 projected functioning level dimension was obtained by the following steps: 1) the total range of the projected functioning level dimension was divided into five strata levels, each representing one year of functioning level; 2) approximately two cases were chosen at random within each of the five strata levels.

The final sample population for this study included ten deaf-blind (Rubella) children born in 1964, five males and five females, and eleven deaf-blind (Rubella) children born in 1966, five males and six females. All 21 children were residents of California, ten children from Northern California and eleven from Southern California where there is a larger percentage of California's population. Figures 1 and 2 portray the two age groups in the study population. Figure 1 shows the 1964 children; Figure 2 shows those born in 1966.

DATA COLLECTION PROCEDURE:

Letters: After selection of the sample population, letters were sent to the parents of the selected children and to the county and district administrators of the school program in which the children were enrolled. These letters informed the parents and administrators of the purposes of the study and requested permission to visit the child's classroom, to review the child's school records, to interview the teacher

of the child, and to interview the parent(s) in the home setting.

Instruments: Four data collecting instruments had been developed during Phase I of this study. The Teacher Interview Schedule (TIS-6) and the Cumulative Folder Schedule (CFS-6) had been developed, field tested, and revised five times before the sixth version of each instrument was accepted. The Parent Interview Schedule (PIS-5) had been developed and revised four times before the fifth version was accepted. The Classroom Observation Form (0-1) had been developed and accepted without additional revisions.

These instruments were mainly concerned with the current functioning levels of the child in the various areas of growth and development and educational progress. The primary areas of concern were: language and communication skills, social and emotional development, intellectual development. perceptual (auditory - visual - tactual) development, gross and fine motor performance, self-care performance, present and future program needs, and future living needs of the handicapped child.

Data Collection and Recording: A four-step sequence of instrument completion during a day was followed whenever possible: 1) The Classroom Observation Form (0-1) was completed early in the school day in order to observe the child in a learning situation before the child became fatigued; 2) The Cumulative Folder or school record was then reviewed for psychological and medical assessments, school placement history, teacher progress reports, and other information pertinent to the child's educational progress. This information was recorded on the Cumulative Folder Form (CFS-6); 3) The Teacher Interview Schedule (TIS-6) is a comprehensive 14-page interview schedule and usually took from one to two hours to complete.

This interview was completed after school hours when the children were gone and the teacher had uninterrupted time available; 4) The Parent Interview Schedule (PIS-5) was completed in the child's home after school hours, when the child was home.

The classroom observation was made by this researcher and was his interpretation of what he observed during one or more lesson periods. During the classroom observations, this investigator observed a variety of instruction. Most lessons were short in duration, from 2 or 3 minutes to 20 minutes depending on the tolerance of the child. Much of the instruction observed was in the motor development or coordination area, visual discrimination, auditory discrimination, and tactual discrimination.

One advanced lesson observed was on arithmetic in a Hard-of-Hearing class. The pupils were naming one, two, and three digit numerals and orally stating which one of two different numerals was "greater than" or "less than" the other numeral. The pupil being observed made four out of four correct judgments.

Several lessons were observed in motor development as well as many lessons in discrimination in the auditory, visual, and tactual areas. In an ambulation lesson, an eight-year-old pupil was practicing walking between the rungs of a ladder laid flat on the floor. This child walked forward between the rungs for the length of the ladder and then backwards to his starting point without missing a single space between the rungs. To this investigator, the startling thing about this lesson is that this pupil took his first unassisted step and started walking independently for the first time in his life during February 1973, approximately eight weeks before the

observation day.

The TIS-6 was completed through a personal interview of the teacher in the classroom after school hours. After completing all portions of the 14-page interview schedule, the teacher was asked to give her best estimate of the current functioning behavioral range of the pupil being discussed as compared to a "normal" child of the same chronological age. She was asked to consider three sources of information in making this estimate: 1) the responses she made to all items in the various areas of the child's growth and development and educational progress covered in the interview, 2) her own progress reports during the past year, and 3) a comparison of the performance of her pupil with the so-called "normal" children of the same chronological age. The teachers gave these estimates in broad terms. For example, "This child is functioning at the two-to-four-year level" or "He is functioning at approximately the kindergarten level, the five-to-six-year level." These estimates were mainly given as a range, such as "The child is functioning at the five-year level in the motor development area and at the three-year level in social development." These estimates were recorded as being the best available measures of the child's daily functioning level as of May 1973, since these teachers have worked intensively with these children over a long period of time. The duration of teacher-pupil relationship ranged from five months to two years - nine months. The search of the cumulative folders or school records of this sample population revealed that reports of psychological and educational assessments since the Diagnostic School evaluations were very limited. Recent objective assessment results were typically not available. The CFS-6 form was completed by transcribing the statistical and historical information that was

available in the child's cumulative folder or school record.

The data collected on the PIS-5 was through a personal interview of one or both of the natural or foster parent(s) in the home setting. This schedule was completed during the same day, when the parent(s) were available, or as soon thereafter as possible. All responses were recorded as stated by the respondents, using their words when a qualified answer was given instead of an objective response.

PART II - TABLES AND DISCUSSION

Part II presents the data, organized in graphic and tabular form, with an accompanying narrative discussion. There are three sections: Apparent Pupil Progress, Comparison of the Two Age Groups, and Educational Program Enrollment of the Children.

When perusing Part II, it is important to remember that there are two main time periods represented during which data were systematically gathered on these deaf-blind (Rubella) children. One time period was that of the Diagnostic School Evaluation, which took place within the period April 1969 to June 1971. Each child had been evaluated during a week of residence at one of the State Diagnostic Schools. The other time period was that of the data-collection phase of this study, which took place in May 1973 (with a few parent interviews completed during the first two weeks of June 1973).

APPARENT PUPIL PROGRESS

Several terms have been coined for this study or employed to describe the processes used to derive estimates and graphic representations of apparent pupil progress. These terms are explained and the processes shown as they were performed for a typical subject in the study. The key terms are Change Line, Functioning Range, Functioning Level, and Functioning Level Change Chart.

Change Lines. Beginning at birth, a child's performance or progress can be plotted along any dimension. Examples of physical dimensions are height and weight, height in inches and weight in pounds. Examples of psychological dimensions are so-called "social age" and "mental age" in which age norms

have typically been derived from empirical studies. A separate Functioning Level Change Chart was drawn for each child using time (months and years) as the horizontal (X) axis and functioning age level scores (months and years) as the vertical (Y) axis. (See Appendix A).

The two psychometric scores giving the widest functioning range were selected from the objective scores reported in the psychological assessment. These scores were plotted on the chart using the month and year when these scores were obtained as the (X) axis coordinate and the age level scores as the (Y) axis coordinate. The highest reported score was either a social age or an attainment age score.

Two change lines were drawn from the time of the birth of the child, month and year of birth on the (X) axis and zero (0) on the (Y) axis to each score plotted. These change lines show on a common time dimension the assumed changes in the functioning levels of the child from birth to the time these scores were obtained.

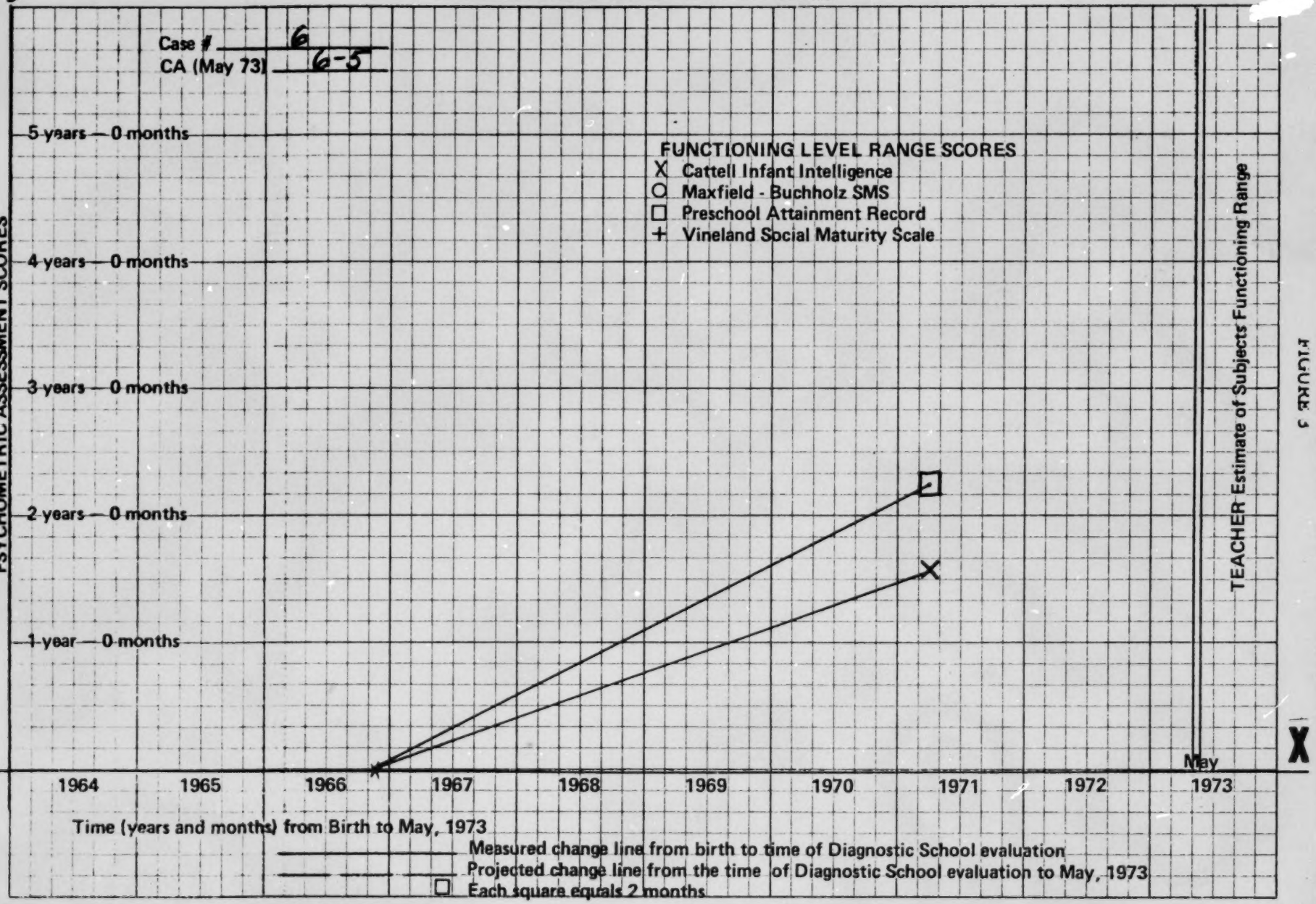
Each line shows the assumed changes in the functioning of the child in the selected area of measurement. The upper line shows the changes in the social age or behavior of the child over the indicated time span. The lower line shows the changes in the mental age of the child as he grows older over the same time span.

Subject's Functioning Level Change Chart

Figure 3

See following figure

FUNCTIONING LEVEL CHANGE CHART



Functioning Range. One score at a particular point in time establishes the functioning level of a child on a particular dimension. Two scores on the same dimension establish a functioning range.

Figure 3 shows two change lines established by plotting the highest and lowest scores reported on the psychological assessment and connecting the two points with the time of birth. The lowest score (mental age) also established the lower limit of the child's functioning range on that time dimension. The highest score (social age) established the upper limit of the child's functioning range on that same time dimension. The area between these two points is the child's functioning range at the time when these scores were obtained.

Functioning Level. The term functioning level as used in this study is the average of a functioning range (a point). The average of the projected functioning range is the projected functioning level. Similarly, the average of the teacher estimate of the child's functioning range is the teacher estimate of the child's functioning level.

Deriving the Projected Functioning Range. The slope of each change line shows an assumed rate of change in functioning from time of birth to the time of assessment. The slope of the upper limit line indicates the rate of change in the social age or behavioral functioning of the child over this time period. The slope of the lower limit line shows the mental age growth rate during this same time period. The mental age rate of change is assumed to be relatively stable and forms a common basis for comparison within the sample population. All 21 subjects had been administered the Cattell Infant Intelligence Scale and

all had obtained a reportable mental age score.

The mental age change line was then extended, retaining the same slope, to intersect a vertical line representing May 1973 on the (X) axis. This vertical line is called the May 1973 axis line and was the data collecting time period for this study. This point of intersection indicates the projected May 1973 mental age functioning level of this subject.

The upper limit change line was also extended, parallel to the projected mental age line and using the slope of the mental age line, to intersect the May 1973 axis. This point of intersection indicates the projected social age functioning level of the child.

Subject's Functioning Level Change Chart

Figure 4

See following chart

The two points of intersection on the 1973 axis established the projected or anticipated functioning range of that child. This projected functioning range retained the same limits in functioning range which were established by the objective scores on the previous psychometric assessment.

This projected range is predicated on a number of assumptions: 1) the same factors have influenced the child's growth and development after assessment as were influencing the child before assessment, 2) the same rate of change in the child's functioning behavior would also occur, and 3) the same

y

FUNCTIONING LEVEL CHART

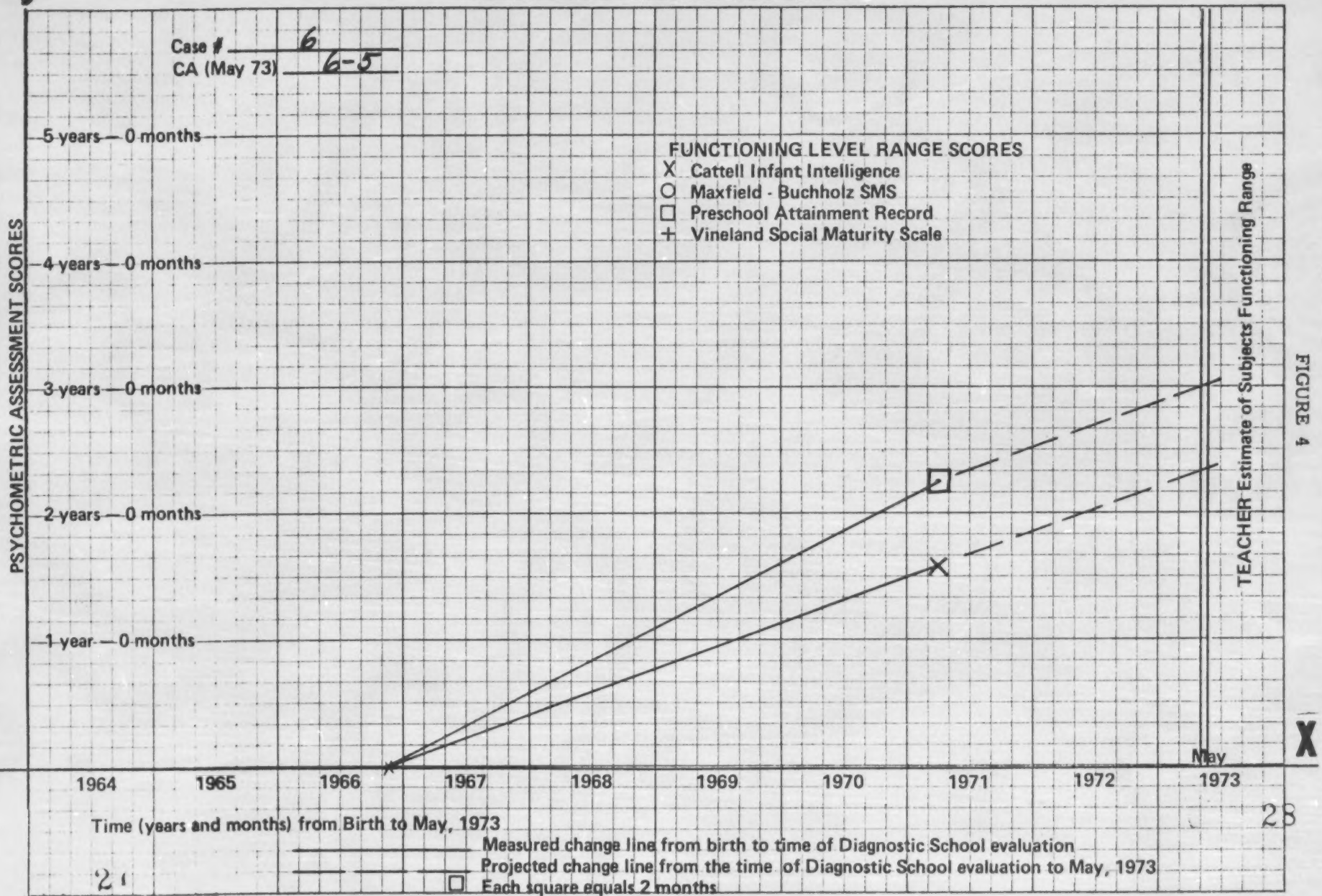


FIGURE 4

X

28

21

changes in the child's physiological growth would occur.

Updating the Functioning Level Change Chart. The teacher's estimate of the child's behavioral functioning range was then plotted on the child's functioning chart along the May 1973 axis when the estimate was obtained. The teacher's estimate of her pupil's functioning range and the measured psychological assessment of the same child's functioning range, projected to May 1973, are now on a common time dimension for equitable comparison. The purpose for comparing these two ranges was to estimate the degree of progress or lack of progress that the subjects were making while attending a full-time public school program since the time of evaluation.

Subject's Functioning Level Change Chart

Figure 5

See figure following

From these 21 individual charts it can be seen that 1) the teacher's estimated range exceeds completely or partially the projected range, 2) the teacher's range falls within the projected range, and 3) the teacher's range did not attain or partially attained the projected range. (See Appendix A)

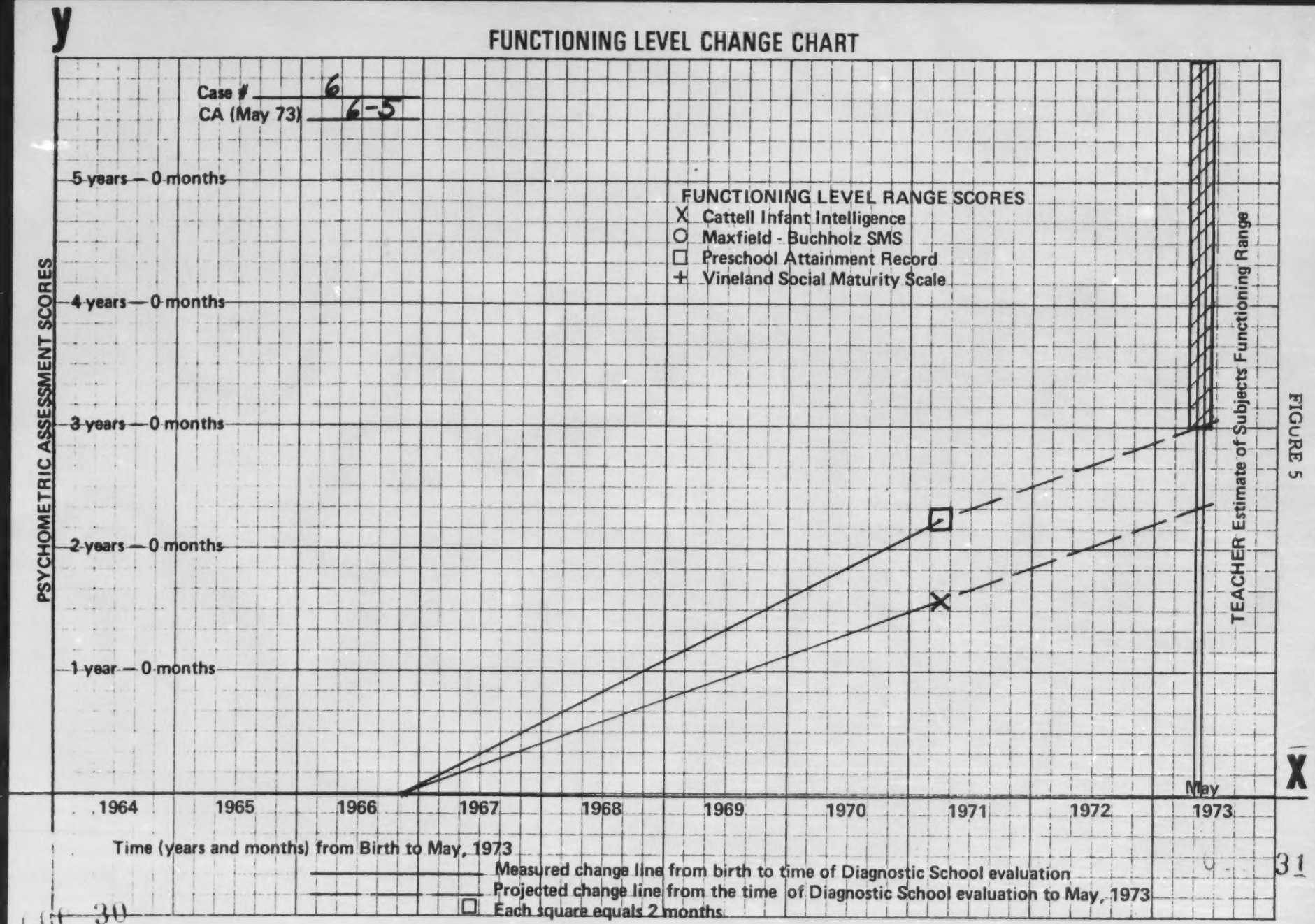

y
FUNCTIONING LEVEL CHANGE CHART
Case # 6
CA (May 73) 6-5
5 years — 0 months
4 years — 0 months
3 years — 0 months
2 years — 0 months
1 year — 0 months
PSYCHOMETRIC ASSESSMENT SCORES
FUNCTIONING LEVEL RANGE SCORES
X Cattell Infant Intelligence
O Maxfield - Buchholz SMS
□ Preschool Attainment Record
+ Vineland Social Maturity Scale
TEACHER Estimate of Subjects Functioning Range
May
X
1964
1965
1966
1967
1968
1969
1970
1971
1972
1973
Time (years and months) from Birth to May, 1973
Measured change line from birth to time of Diagnostic School evaluation
Projected change line from the time of Diagnostic School evaluation to May, 1973
Each square equals 2 months
Oct 30
31

FIGURE 5

Tables I - IX

Table I displays each child's functioning range as estimated by the child's teacher during May 1973, given in terms of years. This table also shows the average of this range given in years and months. This average is considered to be the functioning level of the child during May 1973.

During the data collection period of this study, the teacher of each child was asked to give her best estimate of the current functioning behavior range of her pupil. She was asked to consider three types of information in making this estimate: 1) the responses she made to all items covered in the Teacher Interview Schedule, 2) her own progress reports during the past year, and 3) a comparison of the performance of her pupil with the so-called "normal" children of the same chronological age.

The teachers gave their estimates in broad terms. The functioning range for each child as established by the highest and lowest estimates made by the teacher; such as, the child is functioning near chronological age level in the motor development area but in the social development area, the child is functioning at approximately the three-year level.

Column 1 shows the subject number assigned to each child in the sample population. Column 2 gives the teacher's functioning range estimate in years. Column 3 indicates the average of these estimates in years and months. The average in Column 3 was considered to be the teacher's estimate of the functioning level of the child. These averages are arranged in rank order from the highest to the lowest.

TABLE I Teacher's Functioning Level Estimate (May '73)

Subject No.	Teacher Est. of Functioning Range in Years	Functioning Level Average (yrs-mos)
30	3 - 8	5 - 6
7	5 - 6	5 - 6
23	5 - 6	5 - 6
29	5 - 6	5 - 6
8	5	5 - 0
26	5	5 - 0
6	3 - 6	4 - 6
24	4 - 5	4 - 6
25	4 - 4½	4 - 3
11	3 - 4	3 - 6
10	3 - 4	3 - 6
9	3 - 4	3 - 6
5	3	3 - 0
3	2 - 2½	2 - 3
28	2	2 - 0
21	2	2 - 0
4	1½ - 2	1 - 9
22	1½ - 2	1 - 9
2	1 - 2	1 - 6
27	1 - 2	1 - 6
1	1 - 1½	1 - 3

Table II presents the functioning level ratio for each child derived by comparing the teacher functioning level estimates to the chronological ages of the children at the time these estimates were given in order to obtain a functioning level ratio or a rate of development.

A ratio of development may be stated in terms of two related variables, the child's functioning level and his chronological age. This ratio of functioning level development shows the average rate of development of the child from birth to May 1973 based on the teacher's estimate. Changes in the functioning level ratio indicates that changes are taking place in the rate of the child's development. These changes are possible indicators that additional factors may be influencing the child's development.

This ratio was obtained by dividing the teacher functioning level estimate (in months) by the chronological age of the child during May 1973 (in months) and then translating the answer from a decimal fraction to a percentage.

Column 1 shows the subject number assigned to each child in the sample population. Column 2 is the average of the teacher estimate of the child's functioning range (functioning level) in years and months. Column 3 gives the chronological age in years and months of the child in May 1973. Column 4 indicates the functioning level ratio as a percentage, arranged in rank order from the highest to the lowest.

TABLE II Ratio of Teacher Estimated Functioning Level (May '73)

Subject No.	Teacher Functioning Level (Average) (yrs-mos)	Chronological Age (May 1973) (yrs-mos)	Functioning Level Ratio Teacher Est. / CA
7	5 - 6	6 - 5	86%
8	5 - 0	6 - 7	74%
6	4 - 6	6 - 5	70%
30	5 - 6	8 - 5	65%
23	5 - 6	8 - 6	65%
29	5 - 6	8 - 6	65%
26	5 - 0	8 - 6	60%
24	4 - 6	9 - 1	50%
25	4 - 3	8 - 7	50%
11	3 - 6	7 - 1	50%
10	3 - 6	7 - 2	50%
9	3 - 6	7 - 3	50%
5	3 - 0	6 - 8	45%
3	2 - 3	7 - 4	31%
28	2 - 0	8 - 5	24%
21	2 - 0	8 - 5	24%
4	1 - 9	7 - 3	24%
22	1 - 9	8 - 6	21%
2	1 - 6	7 - 4	20%
27	1 - 6	8 - 6	17%
1	1 - 3	7 - 2	17%

Table III presents for each child the average of his highest and lowest scores obtained on the various psychometric measures used during the Diagnostic School evaluation. Each child obtained a reportable score on two or more different measures during his psychological assessment.

The highest and lowest scores determine the child's functioning range at the time of assessment. The average of these two scores is the child's measured functioning level at that time. A mental age score on the Cattell Infant Intelligence Scale was reported for all 21 children in the sample population and in all but two cases was the lowest of the reported scores. A social or achievement age score was the highest score reported for each of the 21 children.

The psychometric measures used in descending order of frequency of use were (a) Cattell Infant Intelligence Scale, (b) Preschool Attainment Record, (c) Maxfield-Buchholz Scale for Social Maturity with Preschool Blind Children, (d) Leiter International Performance Scale, (e) Vineland Social Maturity Scale, and (f) Merrill-Palmer Scale of Mental Tests.

Column 1 shows the subject number assigned to each child in the sample population. Column 2 presents the highest and lowest reported scores obtained by the child. In all cases the lowest score was the mental age score on the Cattell Infant Intelligence Scale. The highest score obtained and the name of that measure is presented in the column entitled "Other". Column 3 gives the averages of these scores arranged in rank order from the highest to the lowest.

TABLE III Psychometric Scores at Time of Diagnostic School Evaluation

Subject No.	Range of Psychometric Scores: Cattell IIS lowest score (yrs-mos)	Range of Psychometric Scores: Other * highest score (yrs-mos)	Average Psychometric Score (yrs-mos)
10	3 - 6	3 - 6 V	3 - 6
9	2 - 9	3 - 6 MB	3 - 1.5
8	2 - 9	3 - 0 PAR	2 - 10.5
11	2 - 2	3 - 2 MB	2 - 8
26	2 - 1	2 - 7 PAR	2 - 4
23	2 - 0	2 - 7 MB	2 - 3.5
25	1 - 9	2 - 6 MB	2 - 1.5
6	1 - 7	2 - 3 PAR	1 - 11
28	1 - 4	2 - 6 MB	1 - 11
24	1 - 3	2 - 6 MB	1 - 10.5
30	1 - 9	1 -11 PAR	1 - 10
29	1 - 11	1 - 8 PAR	1 - 9.5
7	1 - 7	1 - 11 PAR	1 - 9
27	1 - 0	2 - 0 MB	1 - 6
3	0 - 7	2 - 4 MB	1 - 5.5
5	1 - 3	1 - 1 PAR	1 - 2
2	0 - 7	1 - 5 MB	1 - 0
4	0 - 8	0 - 11 PAR	0 - 9.5
22	0 - 8	0 - 9 PAR	0 - 8.5
21	0 - 7	0 - 8 PAR	0 - 7.5
1	0 - 6	0 - 7 PAR	0 - 6.5

*PAR - Preschool Attainment Record
* V - Vineland
*MB - Maxfield-Buchholz Scale of Social Maturity for use with preschool blind children

Table IV presents the derived functioning level ratio of each child at the time of the Diagnostic School evaluation. This ratio is a comparison of the functioning level of each child, the average of the highest and lowest scores of the psychometric assessment from Table III, with the chronological age of the child at the time of his evaluation.

A ratio of development may be stated in terms of two related variables, the child's measured functioning level and his chronological age. The derived ratio of functioning level development shows the average rate of development of the child from birth to the time of psychometric assessment during the Diagnostic School evaluation. Changes in the derived ratio indicated that changes are taking place in the rate of the child's development. These changes are possible indicators that additional factors may be influencing the child's development.

This ratio was obtained by dividing the average score in months by the child's chronological age in months. The answer, a decimal fraction, was then translated into a percentage.

Column 1 shows the subject number assigned to each child in the sample population. Column 2 is the average of the child's highest and lowest scores in years and months from Table III. Column 3 is the child's chronological age in years and months at the time of assessment. Column 4 presents the derived functioning level ratio as a percentage in rank order from the highest to the lowest.

TABLE IV Derived Ratio of Diagnostic School Functioning Level

Subject No.	Average of Psychometric Scores (yrs-mos)	Chronological Age at Time of DS. Eval. (yrs-mos)	Derived Ratio $\frac{\text{Average Score}}{\text{CA}}$
10	3 - 6	5 - 3	67%
9	3 - 1.5	5 - 0	63%
8	2 - 10.5	4 - 7	63%
11	2 - 8	4 - 3	63%
23	2 - 3.5	4 - 7	50%
7	1 - 9	3 - 7	50%
6	1 - 11	4 - 3	45%
25	2 - 1.5	5 - 6	39%
26	2 - 4	6 - 3	37%
28	1 - 11	5 - 3	37%
29	1 - 9.5	4 - 10	37%
3	1 - 5.5	4 - 4	34%
30	1 - 10	5 - 7	33%
27	1 - 6	4 - 6	33%
5	1 - 2	3 - 8	32%
24	1 - 10.5	6 - 0	31%
2	1 - 0	4 - 6	23%
4	0 - 9.5	4 - 4	17%
22	0 - 8.5	5 - 0	14%
21	0 - 7.5	4 - 7	14%
1	0 - 6.5	4 - 6	12%

Table V shows the computed functioning level gain made by each subject from the time of the child's Diagnostic School evaluation to May 1973. This computed gain is the difference between the child's functioning level as reported by the teacher during May 1973 and the child's measured functioning level at the time of the Diagnostic School evaluation.

The child's measured functioning level was obtained by taking the average of the child's highest and lowest psychometric scores obtained during the psychological assessment of the Diagnostic School evaluation.

During May 1973, each teacher reported her pupil's functioning range in terms of years or years and months. The child's functioning level was obtained by taking the average of the teacher's estimate of the child's functioning range.

This table shows the measured functioning level of the child and the teacher's estimate of the same child's functioning level. The computed gains were obtained by subtracting the measured functioning level from the estimated functioning level.

Column 1 shows the subject number assigned to each child in the sample population. Column 2 is the teacher estimate in years and months of the functioning level of her pupil. Column 3 is the Diagnostic School measured functioning level in years and months. Column 4 presents the computed gain in years and months made in the child's functioning level since the Diagnostic School evaluation.

TABLE V Computed Changes in Functioning Levels of Subjects from Time of Diagnostic School Evaluation to May, 1973

Subject No.	Average of Teacher Est. of Functioning Level Range, May '73 (yrs - mos)	Average Functioning Levels, D. S. Eval. (yrs - mos)	Computed Gains (yrs - mos)
7	5 - 6	1 - 9	3 - 9
29	5 - 6	1 - 9.5	3 - 8.5
30	5 - 6	1 - 10	3 - 8
23	5 - 6	2 - 3.5	3 - 2.5
26	5 - 0	2 - 4	2 - 8
24	4 - 6	1 - 10.5	2 - 7.5
6	4 - 6	1 - 11	2 - 7
8	5 - 0	2 - 10.5	2 - 1.5
25	4 - 3	2 - 1.5	2 - 1.5
5	3 - 0	1 - 2	1 - 10
21	2 - 0	0 - 7.5	1 - 4.5
22	1 - 9	0 - 8.5	1 - 0.5
4	1 - 9	0 - 9.5	0 - 11.5
11	3 - 6	2 - 8	0 - 10
3	2 - 3	1 - 5.5	0 - 9.5
1	1 - 3	0 - 6.5	0 - 8.5
2	1 - 6	1 - 0	0 - 6
9	3 - 6	3 - 1.5	0 - 4.5
28	2 - 0	1 - 11	0 - 1
10	3 - 6	3 - 6	0 - 0
27	1 - 6	1 - 6	0 - 0

Table VI shows the Gain Index: a month-to-month comparison of the amount of computed functioning level gain from Table V and the amount of elapsed time over which the computed functioning level gain was made by each child. This comparison is shown as a ratio to illustrate the average monthly rate of increase in each child's functioning level since the child's Diagnostic School evaluation.

The computed gains from Table V shows the amount of functioning level gains that have taken place since evaluation. These evaluations occurred during 1969, 1970, or 1971; 23 to 49 months prior to May 1973.

This ratio shows the average amount of functioning level gain in months per calendar month of elapsed time since the child's Diagnostic School evaluation. This ratio was computed by dividing the functioning level gains in months by the elapsed time in months since the Diagnostic School evaluation. The resulting answer is the monthly rate of functioning level gain of each child. The monthly ratios are arranged in descending order from the highest rate to the lowest rate.

Column 1 shows the subject number assigned to each child in the sample population. Column 2 is the computed gains in functioning level from Table V in years and months. Column 3 shows the elapsed time in years and months since the Diagnostic School evaluation. Column 4 indicates the month-to-month functioning level gain as compared to time.

TABLE VI Gain Index: Ratio of Functioning Level Gain to Time Elapsed Since Diagnostic School Evaluation

Subject No.	Functioning Level Gains Since DS Eval. (yrs-mos)	Elapsed Time Since DS Eval. (yrs-mos)	Ratio of Gains to Elapsed Time (mos/mos)
30	3 - 8	2 - 10	1.3 /1
7	3 - 9	2 - 11	1.3 /1
26	2 - 8	2 - 2	1.2 /1
6	2 - 7	2 - 2	1.2 /1
8	2 - 1.5	1 - 11	1.1 /1
29	3 - 8.5	3 - 8	1.0 /1
24	2 - 7.5	3 - 1	0.85/1
23	3 - 2.5	3 - 11	0.82/1
25	2 - 1.5	3 - 2	0.67/1
5	1 - 10	3 - 0	0.61/1
21	1 - 4.5	3 - 10	0.36/1
4	0 - 11.5	3 - 0	0.32/1
22	1 - 0.5	3 - 6	0.3 /1
11	0 - 10	2 - 10	0.3 /1
3	0 - 9.5	2 - 11	0.27/1
1	0 - 8.5	2 - 8	0.25/1
2	0 - 6	2 - 7	0.20/1
9	0 - 4.5	2 - 3	0.17/1
28	0 - 1	3 - 2	0.03/1
10	0 - 0	1 - 11	0 - 0
27	0 - 0	4 - 1	0 - 0

Table VII presents the deviations from the projected functioning level for each of the 21 children in the selected sample. The data for this table was obtained from the 21 Functioning Level Change Charts. (See Appendix A) The projected functioning level, which is the average of the projected functioning range, was taken directly from these charts. The teacher estimate of the child's functioning level is also plotted on this chart. The deviations is the difference between the projected level and the estimated level in either a positive or negative direction.

These differences are in a positive direction when the child's estimated level exceeds the projected level and in a negative direction when the child's estimated level failed to attain the projected level. Table VII shows that 16 of the 21 children in the selected sample exceeded their projected functioning levels by an amount of one month to as much as two years and ten months. Five failed to attain their projected functioning levels.

Column 1 shows the subject number assigned to each child in the sample population. Column 2 is the teacher's estimate of the child's functioning level in years and months. Column 3 is the projected functioning level of the child in years and months. Column 4 shows the deviation in years and months from the projected functioning level in a positive or negative direction. The deviations are arranged from a maximum in the positive direction to the maximum in the negative direction.

TABLE VII Deviation from Projected Functioning Levels as Computed from Teachers' Estimate of Functioning Level in May, 1973

Subject No.	Average Teacher Est. of Functioning Level (yrs-mos)	Projected (May '73) Functioning Level (average) (yrs-mos)	Deviation * (yrs - mos)
30	5 - 6	2 - 8	+2 - 10
7	5 - 6	3 - 0	+2 - 6
29	5 - 6	3 - 2	+2 - 4
24	4 - 6	2 - 6	+2 - 0
26	5 - 0	3 - 1	+1 - 11
6	4 - 6	2 - 8	+1 - 10
23	5 - 6	4 - 0	+1 - 6
25	4 - 3	3 - 2	+1 - 1
8	5 - 0	4 - 0	+1 - 0
21	2 - 0	1 - 1	+0 - 11
5	3 - 0	2 - 2	+0 - 10
22	1 - 9	1 - 2	+0 - 7
4	1 - 9	1 - 3	+0 - 6
1	1 - 3	0 - 10	+0 - 5
3	2 - 3	1 - 11	+0 - 4
2	1 - 6	1 - 5	+0 - 1
11	3 - 6	4 - 1	(0 - 7)
28	2 - 0	2 - 9	(0 - 9)
9	3 - 6	4 - 5	(0 - 11)
27	1 - 6	2 - 6	(1 - 0)
10	3 - 6	4 - 10	(1 - 4)

* "+" indicates exceeded
"(-)" indicates not attained

COMPARISON OF THE TWO AGE GROUPS

It should be noted that subject numbers 1 through 11 were assigned to the younger children, born in 1966. Subject numbers 21 through 30 were assigned to the older children, born in 1964.

Table VIII compares the two age groups, 10 born in 1964 and 11 born in 1966, on the deviation dimension taken from Table VII. This deviation column shows that 16 children of the 21 selected children exceeded their projected functioning levels and 5 children failed to attain their anticipated functioning levels.

The older children born in 1964 outperformed the younger children by holding the higher positions in the rank ordering of the deviations. Sixteen children of the selected sample exceeded their projected functioning levels:

(1) Eight of the 10 children born in 1964 were among the top 12 positions, the other 2 children did not attain their projected functioning levels.

(2) The deviations of 8 children exceeded their projected functioning levels by 1 year or more. Five of these 8 children were born in 1964.

(3) The deviations of 4 children exceeded their projected functioning levels by 2 years or more. Three of these 4 children were born in 1964.

Five children of the selected sample did not attain their projected functioning levels. Two of these children were born in 1964 and 3 children were born in 1966.

TABLE VIII Age Group Comparison on Deviation from Projected Functioning Levels

Deviation from May '73 Projected Functioning Level (Table VII) (yrs-mos)	Subject Number born in 1964	1966
+ 2 - 10	30	
+ 2 - 6		7
+ 2 - 4	29	
+ 2 - 0	24	
+ 1 - 11	26	
+ 1 - 10		6
+ 1 - 6	23	
+ 1 - 1	25	
+ 1 - 0		8
+ 0 - 11	21	
+ 0 - 10		5
+ 0 - 7	22	
+ 0 - 6		4
+ 0 - 5		1
+ 0 - 4		3
+ 0 - 1		2
(0 - 7)		11
(0 - 9)	28	
(0 - 11)		9
(1 - 0)	27	
(1 - 4)		10

"+" indicates exceeded
"(-)" indicates not attained

Presenting the two age groups separately, Table IX compares the Derived Functioning Level Ratio (Table IV) with the teacher estimated Functioning Level Ratio (Table II) to ascertain the amount of increase or decrease. The Derived Functioning Level Ratio was obtained by dividing the average score obtained during the psychological assessment by the child's chronological age at the time of assessment. The teacher estimated Functioning Level Ratio was obtained by dividing the teacher's functioning level range average by the child's chronological age in May 1973 when the estimate was given. The ratios of the children in each age group, Table II and Table IV, were used to compare the progress made by each age group from the time of assessment to May 1973. The Derived Functioning Level Ratio was considered the base and the Functioning Level Ratio was compared to the base. These differences are shown as increases (+) or decreases (-) in percentage points.

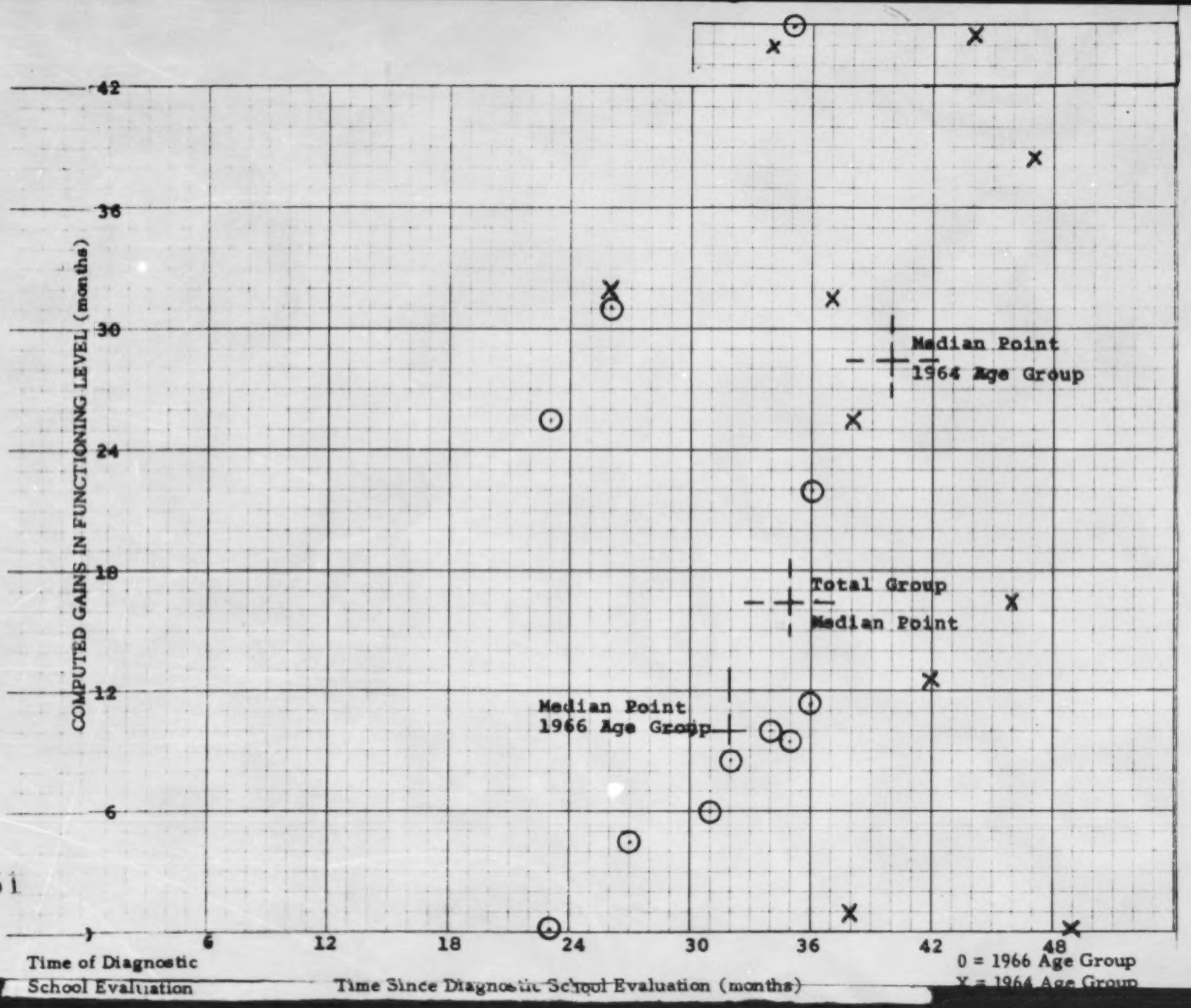
It was found that 80% of the 1964 age group showed a ratio increase while 46% of the 1966 age group showed a ratio increase. Eight of the 10 children born in 1964 showed a total ratio increase of 145 percentage points averaging 18.1 points and ranging from 7 to 32 points. Two children showed a decrease in ratios. Five of the 11 children born in 1966 showed a total ratio increase of 77 percentage points, ranging from 7 to 36 percentage points. Six children showed a decrease in ratios.

Column 1 shows the subject number of each child. Column 2 reflects the Derived Functioning Level Ratio from Table IV arranged in descending order. Column 3 is the teacher's Functioning Level Ratio from Table II. Column 4 shows the difference between the percentage points of these ratios.

TABLE IX Comparison of Ratios (Tables II & IV) for Each Age Group

ubject No.	Percentage Points: Derived Functioning Level Ratio (Table IV)	Percentage Points: May '73 Functioning Level Ratio (Table II)	Difference in * Percentage Points
1964 Age Level Group			
23	50	65	+ 15
25	39	50	+ 11
26	37	60	+ 23
28	37	24	- 13
29	37	65	+ 28
30	33	65	+ 32
27	33	17	- 16
24	31	50	+ 19
22	14	21	+ 7
21	14	24	+ 10
1966 Age Level Group			
10	67	50	- 17
9	63	50	- 13
8	63	74	+ 11
11	63	50	- 13
7	50	86	+ 36
6	45	55	+ 10
3	34	31	- 3
5	32	45	+ 13
2	23	20	- 3
4	17	24	+ 7
1	12	17	+ 5

* (+) Increase in ratio
(-) Decrease in ratio


COMPUTED GAINS IN FUNCTIONING LEVEL (months)
42
36
30
24
18
12
6
0
6
12
18
24
30
36
42
48
Median Point
1964 Age Group
Total Group
Median Point
Median Point
1966 Age Group
Time of Diagnostic
School Evaluation
Time Since Diagnostic School Evaluation (months)
0 = 1966 Age Group
X = 1964 Age Group

The Scatter Diagram has been divided at the median child with respect to the vertical axis, Computed Gains in Functioning Level. The lower half of the Scatter Diagram shows the functioning progress of the 11 children who appear to have gained somewhat in functioning level in the time span since evaluation. Eight of these 11 children appear to have been making progress at approximately the same rate. Three children made minimal progress.

The upper half of the Scatter Diagram shows a contrasting picture. The remaining 10 children scattered in a more random manner at a much higher level along the vertical axis. These children are of special interest because some have shown a readiness for language development, oral speech, reading, and some arithmetic. Teachers reported that some of these children use oral speech to some degree in communicating with others and have some usable hearing in one or both ears. Teachers also reported that a few of these children know some or all of the alphabet and can read to some degree. These children also are reported to have some usable vision in one or both eyes.

Scatter Diagram No. 1 displays the computed gains variable plotted against the elapsed time span variable (since the Diagnostic School evaluation), both taken from Table VI. The computed gains made by the children in the sample population were plotted on a graph using time (years and months) as the horizontal (X) axis and functioning level gains (years and months) as the vertical (Y) axis. The computed gains were obtained by subtracting the measured functioning level at the time of the Diagnostic School evaluation from the teacher's estimated

functioning level in May 1973. The elapsed time span since the Diagnostic School evaluation varied with each child. These functioning level gains were plotted against the time span between the two assessments. Different symbols were used for each age group. The symbol (▱) was used for the 1964 age group of 10 children and (0) for the 1966 age group of 11 children.

A median point was obtained for the total sample and for each age group. These three median points show: 1) for the total group, the median functioning level gain is 1 year-4½ months and the median time span since the Diagnostic School evaluation is 2 years-11 months; 2) for the 1964 age group, the median functioning level gain is 2 years-4½ months, 12 months higher than the median gain for the total group. The median time span since evaluation is 3 years-4 months; 3) for the 1966 age group, the median functioning level gain is 0 years-10 months, 6½ months lower than for the total group. The median time span since evaluation is 2 years-8 months.

Comparing age groups: The median score of the 1964 age groups was compared to the median score of the 1966 age group; 2 years - 4½ months for the 1964 group and 0 years - 10 months for the 1966 group. The 1964 age group outperformed the 1966 age group by 1 year - 6½ months. This higher performance by the 1964 age group was obtained over a longer time span of 8 months between assessments; 3 years - 4 months as compared to 2 years - 8 months.

The range of computed gains in functioning level of each age group is approximately the same; from 0 - 0 to 3 years - 8½ months for the 1964 group and 0 - 0 to 3 years - 9 months for the 1966 group. The range of the elapsed time span since evaluation is from 1 year - 11 months to 3 years - 0 months for the 1966

group and from 2 years - 2 months to 4 years - 1 month for the 1964 age group. The scatter along the vertical axis for the 1964 age group is somewhat uniform, with 2 cases in the 0 to 1 year level, 2 cases in the 1 to 2 year level, 3 cases in the 2 to 3 year level, and 3 cases in the 3 to 4 year level. 60% of the 10 children in the 1964 age group are concentrated in the upper half of the total vertical range. The scatter along the vertical axis for the 1966 age group is skewed to the lower end with 7 cases between the 0 to 1 year level. There is 1 case in the 1 to 2 year level, 2 cases in the 2 to 3 year level, and 1 case in the 3 to 4 year level. 64% of the 11 children in the 1966 age group are concentrated in the lower quarter (0-1 year level) of the total vertical range.

These differences in functioning level gain between the two age groups since Diagnostic School evaluation may be more unexpected when considering the selection procedure. The subjects in both age groups were selected on a stratified random basis with approximately equal representation at each of the five age levels from the total available range. (See Figure 1 and 2)

The measured mental age scores for the children born in 1966 were higher than the scores for the 1964 group. The subjects of the 1966 group obtained mental age scores that averaged 2 months higher than the average obtained by the 1964 group. The range of mental age scores on the Cattell Infant Intelligence Scale obtained during the Diagnostic School evaluation for the 1966 age group is from 6 months to 3 years - 6 months with a median score of 1 year - 7 months. The range for the 1964 group is from 7 months to 2 years - 3 months with a median score of 1 year - 7 months.

The range of the projected May 1973 mental age scores for the 1966 age group is from 9 months to 4 years - 10 months with a median score of 2 years - 4 months. The range for the 1964 age group is from 11 months to 4 years - 3 months with a median score of 2 years - 5 months.

The chronological age range in May 1973 for each age group is from 6 years - 5 months to 7 years - 4 months with a median age of 7 years - 2 months for the 1966 age group. The range for the 1964 age group is from 8 years - 5 months to 9 years - 1 month with the median age of 8 years - 6 months. The difference in the median ages of the two groups is 1 year - 4 months. The difference in the average ages of the two groups is 1 year - 6½ months.

Tables X - XIII

EDUCATIONAL PROGRAMS ATTENDED

As of May 1973, Table X shows, for the entire study sample, the type(s) of public school placement, the pupil-teacher ratio, and how long the present teacher has been working with the pupil.

The 21 children in the sample population were attending public school classes in 20 different school agencies. Fifteen children were found in deaf-blind classes, 3 children in multi-handicapped classes, 1 child in a deaf and hard-of-hearing class, 1 child in a hard-of-hearing class, and 1 child in a visually handicapped class.

The children were attending classes with pupil-teacher ratios from 3 to 1 to 8 to 1. Ratios of 3 to 1 were found in the deaf-blind classes and 4 to 1 in one deaf-blind class. Ratios of 5 to 1 through 8 to 1 were found for the classes other than the deaf-blind classes. A full-time, salaried teacher aide was working under the direction of the teacher in all classes.

Generally, the present teachers have been teaching the children of the sample population for approximately 1 year. Fifteen of the 20 teachers have been working with the selected pupil(s) for approximately 2 years. One teacher was teaching 2 children selected for the study.

Column 1 shows the subject number of each child. Column 2 indicates the type of school program that the child was attending. Column 3 gives the number of children assigned to each teacher. Column 4 shows when the present teacher started working with the selected pupil.

TABLE X Public School Placement (May 1973)

Subject No.	Type of Class Placement	Student-Teacher Ratio	Present Teacher has been teaching this pupil since
30	M-H	5	9/72
7	V-H	7	2/72
29	M-H	5	9/72
24	D-B	3	7/71
26	D-B	3	6/72
6	D-B	3	9/72
25	D-B	3	12/72
8	D-B	3	9/72
21	D-B	3	9/71
5	D & HOH	8	1/73
22	D-B	4	9/72
23	HOH	5	9/71
4	D-B	3	6/71
1	D-B	3	2/73
3	D-B	3	12/72
2	D-B	3	9/72
11	D-B	3	9/72
28	D-B	3	9/71
9	D-B	3	9/72
27	D-B	3	9/72
10	M-H	5	1/73

D-B Deaf-Blind V-H Visually Handicapped
M-H Multi-Handicapped HOH Hard of Hearing
D & HOH Deaf & Hard of Hearing

Table XI shows the various full-time school programs that each child in the sample population had attended, or was attending, and the time period of attendance. A full-time school program has been defined for this study as a child attending a school program of instruction for a minimum of 3 hours per day, 5 days per week, and 9 months per year.

Many of these children had also attended a variety of school programs prior to their full-time school placements. These programs were for the pre-public school age children, available on an intermittent basis for approximately 1 or 2 hours per day and only 2 or 3 days per week.

In May 1973, all subjects were found attending public school programs 5 days per week during the normal academic school year plus the extended school year of approximately 5 or 6 additional weeks during July and August. The number of classroom hours of instruction per day varied from 3½ hours to 6 hours per day; average was 4 3/4 hours per day.

All of the children were transported to and from school by either school bus or private transportation. The transportation time from home to school varied from a few minutes to as much as 1 hour each way. The attendance record of these children is outstanding. The absentee rate for the whole group is approximately 5%. The rate for 18 of the 21 children is only 2%; the other 3 children are subject to frequent illnesses.

Column 1 shows the subject number of each child. Column 2 indicates the chronological age of the child as of May 1973. Column 3 presents the types of full-time school programs attended by each child and the attendance dates.

TABLE XI Full Time School Programs Attended by Sample Population

Subject No.	Chronological Age (May 1973) (yrs-mos)	Types of Program Attended and Attendance Dates
30	8 - 5	SDS (9/70 - 8/71) MH (9/71 - 6/73)
7	6 - 5	MH (1/70 - 2/72) VH (2/72 - 6/73)
29	8 - 6	MH (9/68 - 6/73)
24	9 - 1	TMR (5/70 - 6/71) DB (9/71 - 6/73)
26	8 - 6	HOH (9/70 - 6/71) DB (9/71 - 6/73)
6	6 - 5	DB (9/70 - 1/71) DB (1/71 - 6/73)
25	8 - 7	DB (6/71 - 6/73)
8	6 - 7	MH (9/70 - 6/71) DB (9/71 - 6/73)
21	8 - 5	DB (9/71 - 6/73)
5	6 - 8	MH (10/69 - 12/72) D&HOH (1/73 - 6/73)
22	8 - 6	DB (12/68 - 10/71) DB (10/71 - 6/73)
23	8 - 6	HOH (9/71 - 6/73)
4	7 - 3	DB (9/71 - 6/73)
1	7 - 2	DB (9/70 - 10/72) DB (10/72 - 6/73)
3	7 - 4	DB (9/71 - 6/73)
2	7 - 4	SDS (9/71 - 7/72) DB (9/72 - 6/73)
11	7 - 1	SDS (9/70 - 7/71) D&HOH (9/71 - 6/72) DB (9/72 - 6/73)
28	8 - 5	SDS (9/70 - 7/71) DB (9/71 - 6/73)
9	7 - 3	D&HOH (9/69 - 6/72) DB (9/72 - 6/73)
27	8 - 6	MH (6/69 - 6/71) DB (9/71 - 6/73)
10	7 - 2	Deaf (9/69 - 5/71) MH (6/71 - 6/73)

SDS - State Diagnostic School
DB - Deaf-Blind
MH - Multihandicapped
TMR - Trainable Mentally Retarded
VH - Visually Handicapped
HOH - Hard of Hearing
D&HOH - Deaf & Hard of Hearing

Tables XII and XIII summarize the responses of teachers and parents when asked to characterize the extent of usable vision and hearing of the children, both aided and unaided. In both tables, Column 1 shows the subject number of the child. Column 2 shows the teacher's response. Column 3 shows the parents's response. In both tables, the teacher characterizations have been arranged in descending order, listing the unaided responses ahead of the aided responses.

TABLE XII Usable Vision as Characterized by Teachers and Parents

Subject No.	Teachers		Parents	
	Aided	Unaided	Aided	Unaided
4		Good in both eyes		
8		Very Good	Good	
30		Good in right eye	Very Good	
10		Normal in right eye	Good	
24		Some	Poor	
3		Some	Good	
21		Some	Poor	
5	Good		Good	
7	Good		Good	
28	Good		Good	
29	Good		Good in right eye	
22	Fair		Fair	
6	Some			
23	Some		Good	
25	Some		Good	
11	Good in right eye		Good in right eye	
26	Some in left eye		Fair	
2	Poor		Poor	
9	Poor		Some	
1	Severe loss		Blind	
27	Severe loss		Blind	

TABLE XIII Usable Hearing as Characterized by Teachers and Parents

Subject No.	Teachers		Parents	
	Aided	Unaided	Aided	Unaided
8		Very good in both ears	Good	
5		Very good	Good	
6		Very good		
4		Some		
24		Some	Poor	
3		Some		Moderate loss
7	Very good		Very good	
23	Good		Very good	
28	Good		Fair	
9	Moderate loss		Some	
30	Some in right ear		Profoundly deaf	
25	Some in right ear		Poor	
26	Poor		Good	
10	Profoundly deaf		Profoundly deaf	
21	Profoundly deaf		Profoundly deaf	
29	"		"	
22	"		"	
11	"		"	
2	"		"	
1	"		"	
27	"		"	

PART III - SUMMARY AND CONCLUSION

Part III will summarize Parts I and II, provide additional information on selected aspects of the children's behavior, their school programs, and their future needs, and report the investigator's conclusions, including suggestions for future research.

SUMMARY:

Part I describes the sample, the purpose, and the procedure of this exploratory follow-up study on 21 deaf-blind (Rubella) children attending public school programs in California.

The initial sample of children to be considered for this follow-up study was limited to the following: 1) children evaluated at one of the two State Diagnostic Schools for Neurologically Handicapped Children, 2) born in 1964 and 1966, and 3) residing in California and attending a California public school program.

From the 43 subjects meeting the above criteria, 10 subjects born in 1964 and 11 subjects born in 1966 were selected by a stratified random selection procedure. A stratified random selection was made in order to obtain two age groups similar in makeup along a common dimension. The common dimension used was the projected functioning level of May 1973 for each child in each age group. (See Figures 1 and 2)

Representativeness along the May 1973 projected functioning level dimension was obtained by dividing the total range of the projected functioning level dimention into five strata levels and selecting approximately two cases at random within each of the five strata levels.

The purpose was to collect and organize first-hand data from the teachers and parent of the selected deaf-blind (Rubella) children on their current functioning

levels and their educational progress.

The procedure followed was to obtain parental permission to collect the data by completing four questionnaires through on-site visitations by the investigator and to tabulate and organize the data. The on-site visitations included the completion of a teacher interview schedule, parent interview schedule, classroom observation of each child, and a review of each child's cumulative folder or school record.

Part II indicated that all of the deaf-blind (Rubella) children in the sample population have made some progress since their Diagnostic School evaluations and that nearly half of the children made substantial progress in the areas of growth and development. The remaining children in the sample population also appeared to have made substantial gains when considering the number and severity of their handicapping conditions. Part II also showed that the children born in 1964, the older age group, outperformed the children born in 1966, the younger age group. The teachers reported that the older age group children are functioning at a level nearer to their chronological age level than the younger age group children. In addition, the older age group outperformed by a wide margin the younger group when considering the amount of functioning level gains made during the time span from their Diagnostic School evaluations to may 1973. (See Table IX)

Even though all of the children in the sample population have been diagnosed and classified as being deaf and blind, several of these children have some usable vision and/or hearing. Part II also presented the degree of usable vision and/or hearing of each subject as characterized by the teacher and parent of each child. These parents and teachers also reported that several children are making more

efficient use of whatever available vision and/or hearing. It appears that some children have been learning to use their available vision and/or hearing in compensating ways for other deficiencies. The ability to make greater use of one's vision and/or hearing may possibly be the major contributing factor to the unexpected and wide range of growth in the cognitive and affective areas, motor abilities, and the educational progress of these children.

CURRENT BEHAVIOR, PRESENT PROGRAMS, AND FUTURE NEEDS:

Selected aspects of the children's participation in the school programs and of the school programs themselves have been summarized as follows from their teachers' reports:

1. The absentee rate for the 1972-1973 academic school year was approximately 2% for 18 of the subjects. The rate for the other 3 subjects was approximately 20%.
2. All teachers employ the total communication method in teaching language skills to these children.
3 Eighteen children are capable of acquiring a system of symbols for communicating with other people; 7 may acquire an oral and written system of communication and 11 may acquire a sign language or natural gesture system of communication.
4. 7 children are capable of speaking single words.
   5 children are capable of speaking phrases or kernel sentences.
   10 children are capable of understanding spoken sentences.

7 children are capable of understanding written words.

8 children are capable of writing single words.

0 children are capable of writing sentences.

5. Nine children have good intellectual potential, but adjustment will be limited and they will require a sheltered environment.

6. Three children have excellent potential with the possibility of managing themselves independently in the world.

7. Fifteen children will be capable of contributing to their own support to some degree.

8. Eleven children should be capable of being partially self-supporting as an adult but living with parents, relatives, or in a foster home. Three children should be capable of being partially or fully self-supporting and living independently.

There are numerous factors, such as motivation, that contribute to the educational progress of all children. It is possible that attending a regular public school program on a daily basis, like all other children, may also be a major motivational factor for the deaf-blind child.

Deaf-blind (Rubella) children, like all other children, grow in physical size and chronological age. They also develop in cognitive functioning, social and emotional behavior, language and communication skills, and physical performance.

The following is a summary of the May 1973 behavioral range in selected areas of the 21 subjects as reported by the teachers and parents of these children:

1. Cognitive development: A wide range was noted from severe retardation to well above normal; one teacher estimated the IQ of one child at approximately 140.
2. Language development: (a) Oral speech ranged from no sounds or a few noises to near-age-level speech; (b) Reading varied: most of the sample could not read words but several children could read a few words and two or three could read near the kindergarten level; (c) Expressive language lagged considerably behind receptive language for both signing and speech.
3. Arithmetic: Most of the children had no understanding of the concept of numbers or of counting, while a few appeared to understand to some extent the concepts of numeration, counting, greater than - less than, and the operations of addition and subtraction.
4. Social behavior: This aspect varied from very bizarre and completely unaware of others to approximately normal or near age level behavior.
5. Emotional behavior: Reports in this area ranged from being easily frustrated with frequent tantrums to good emotional stability without having had a tantrum in many months.
6. Motor, gross and fine: Most of these children made very good gains in the motor development area. The gains ranged from having recently learned to walk to age-level performance. A few of these children could swim, dive from a low diving board, roller skate, and one child could ride a bicycle.
7. Self-care: Performance ranged from custodial to near independence .

The deaf-blind programs appear to be well-supported. All classrooms visited were more than adequate in size and well stocked with materials and equipment. The physical facilities: lighting, heating, ventilation, storage, bathroom, floor space, and cubic air space were more than adequate. The deaf-blind programs were well accepted by the elementary school faculty and the school administration.

The most immediate school program concern of nearly all of the teachers is the lack of an appropriate and desirable peer model for their deaf-blind pupils to pattern themselves after. There is also a great need for more interaction between the deaf-blind children and the other children in the elementary school.

Twelve teachers felt that their program needs to be expanded or altered. Nearly all of the teachers felt that their program should be expanded to include the services of additional specialists. The most frequently mentioned specialists were speech or language therapist, physical therapist, occupational therapist, and recreation therapist. The needed program changes are longer school day, more auditory training, more visual training, and psychological testing.

Teachers reported that most parents are involved with their child's educational program. Some parents work as unpaid aides in the classroom. Other parent and siblings are learning sign language from the classroom teacher to coordinate the home and classroom communication skill development of the child. Many parents attend workshops to better understand their child's problems and to learn how to work more effectively with the child in the home situation.

Nineteen parents were available for interview during May 1973. These parents provided the data necessary to complete the Parent Interview Schedule, which required from 1 to 1½ hours to complete. This data was obtained from the natural

mother in 8 cases, both natural parents in 3 cases, natural grandmother in 1 case, 4 foster mothers, and both foster parents in 3 cases.

All parents were unanimous in their response to the item, "Is your child making progress?" All 19 parents answered, "yes" and several parents were more than enthusiastic.

Summary of Parent's Assessment of their Child's Progress and Program:

Is your child making progress?		Yes - 19	No - 0
How much progress?	A good deal - 13	Some - 6	None - 0
Should your child be making better progress?		Yes - 3	No - 16
Would you like a different type of program for your child?		Yes - 4	No - 15

From these responses, it can be seen that the parents feel that their children are making a great deal of educational progress in their present school programs. Many of these parents believe that this progress would not have occured without the availability of the full-time deaf-blind programs.

Several parents also feel that much of their child's progress was better than they had hoped for and more progress would be difficult to expect from their children when considering the severity of their handicaps. Most parents are very much satisfied with the present programs and do not want changes at this time.

The 4 parents who preferred a different type of program for their child gave the following reasons for desiring a change: 1) would prefer a smaller class for more

individualized instruction; a deaf-blind class of 3 pupils instead of the present multi-handicapped class of 5 pupils, 2) would prefer a longer school day instead of the present 3½ hours per day in the present deaf-blind class, 3) would prefer residential placement which would have its own appropriate educational facilities, 4) would prefer a single-handicapped Hard-of-Hearing class instead of the present deaf-blind class.

The most immediate short-range concern of parents is the availability of appropriate school programs for their children as they grow older. The present programs are considered pre-school (or pre-academic) programs without a specified deaf-blind track leading towards high school graduation or a vocational training program. A frequent question was, "What type of vocational training will be provided and who will provide this training?"

The universal concern of parents is the child's adult living situation and his ability to become partially or totally self-supporting. Six parents are hopeful that their children will become at least partially self-supporting and the parents of 5 other children hope their children will become totally self-supporting. These parents also believe that this hope can only be achieved through a meaningful and realistic vocational training program, coordinated with community understanding and job availability.

DESIGN AND LIMITATIONS:

DESIGN:

As an idiographic (N = 1) follow-up study on educational progresss, no control or contrast groups were formed. Each child was considered individually (both

alone and within his age group). The educational progress and various aspects of the functioning behavior of the child, not his school program, were the focal points of the study. Data was collected in the areas of language and communication, intellectual development, social and emotional areas, gross and fine motor performance, self-care performance, present and future school program needs. As an exploratory study, hypotheses had not been formulated.

LIMITATIONS:

The extent to which this study can be generalized to all deaf-blind (Rubella) children is subject to several limitations. Aspects of the limitations of the study are presented in the following paragraphs.

The chief limitation is the subjective nature of this study; nearly all of the data collected was based on the subjective opinions of the parents and teachers of these children and on a classroom observation made by this investigator.

Additional limitations cover a wide range of topics:

1. The limited age ranges of the subjects, from 6-5 to 7-4 and from 8-5 to 9-1.
2. The limited number of children in the sample.
3. The requirement of having been evaluated at one of the Diagnostic Schools.
4. The wide range of residual or usable vision and/or hearing reported as possessed by these children.
5. The May 1973 estimates of the functioning range of the 21 children were made by 20 different teachers in charge of these children throughout California. One teacher had 2 subject children in her deaf-blind class.

6. The psychological assessment scores had been obtained at various times between 2 to 4 years ago, at the time of the Diagnostic School evaluation when all the children were much younger. The chronological age of the children ranged from 3-8 to 6-3 at the time of assessment.

7. The child's home situation varied considerably. Children were living with one or both natural parent(s), in foster home settings approximating a natural family situation, in a semi-institutional arrangement, or in an institutional situation.

8. Only 19 of the 21 Parent Interview Schedules were completed because the parents of 2 children were not available for interview during the data collecting time period.

9. Only 19 of the 21 classroom observations were completed because 2 children were absent during the day that the investigator was scheduled to visit the classroom and interview the teacher. Follow-up attempts were unsuccessful.

CONCLUSION:

Due to the subjective nature of this study, the limited findings of this report can not be generalized to the total deaf-blind (Rubella) population. This report does show that much work remains to be done in helping deaf-blind children surmount their difficulties in order to be contributing members of society and build a meaningful image of self worth and esteem.

With special instruction, appropriate to the specific characteristics of the deaf-blind child, many will be able to surmount their difficulties and move ahead to

near normal or normal academic and social achievement. As the existence and the needs of deaf-blind children become more apparent, increasing concern will develop for more precise definition of the problems of these children, for delineation of the programs and services required to meet these problems, and for evaluation of our present theories of educating these children.

Despite the fact that present knowledge is limited, the public schools are confronted with the problem of providing educational programs for deaf-blind children. In order to accomplish this task as soon as possible, a "total push" effort has been underway by Federal, State, and local agencies. Decisions to commit money, personnel, and facilities have been made in recent years. The Southwestern Region Deaf-Blind Center was established and funded by the federal government in 1969, the California State Department of Education provides funding assistance for deaf-blind programs, and the elected representatives and school staffs at the community and school district level support these programs.

A hierarchy of required commitments is as follows:

1. Passing legislation which provides financial support.
2. Coordination of Federal, State, and local agencies.
3. Training qualified personnel .
4. Providing facilities and equipment.
5. Gaining access to preschool and school-age populations.
6. Research.
7. Field testing.
8. Demonstration and dissemination.

The first five steps of the above hierarchy have been completed or are underway. This exploratory study is an initial effort in providing a source of basic information for researchers. It is hoped that the basic information collected by this study will provide the basis from which hypotheses will be formulated for further study. Three examples of potential areas for fruitful research are presented in the following paragraphs:

1. In almost all daily activities, particularly in school related tasks, all children must process multiple-stimulus information. However, the simple sensory functioning of one sensory system appears to be affected or modified by the functioning of other sensory system, both as they function independently and in coordination with other systems. How does the deaf-blind (Rubella) child compensate in his processing of multiple sensory stimuli when two sensory systems are impaired?
2. An important aspect of any teaching situation is the response required of the learner. A learning situation can be very complex if the responses required of the child are beyond his ability. What responses should and must be required of the deaf-blind (Rubella) child? Under what conditions?
3. It has been shown that there is a rapid improvement in the integrative abilities at about the same time the typical child goes to school. One might wonder whether this rapid improvement is due to "maturation" or to instruction and practice in the school, both of which make demands on the integrative processes. Does this rapid improvement also take place with deaf-blind (Rubella) children?

Other factors that appear to be of interest for further research are attending a full-time public school program like all other children and the competition of a challenging peer model (classmate). Further research in all of the above areas may have far reaching implications in the development of better educational programs for deaf-blind (Rubella) children.

One final impression by this investigator: probably the most important single factor influencing the functional development and educational progress of the deaf-blind (Rubella) child has been the loving acceptance of the child as he is and the dedication and hard work required from and provided by the teachers and parents.

APPENDIX A

y

FUNCTIONING LEVEL CHANGE CHART

Case # 30
CA (May 73) 8-5

PSYCHOMETRIC ASSESSMENT SCORES

5 years — 0 months
4 years — 0 months
3 years — 0 months
2 years — 0 months
1 year — 0 months

FUNCTIONING LEVEL RANGE SCORES
X Cattell Infant Intelligence
O Maxfield - Buchholz SMS
□ Preschool Attainment Record
+ Vineland Social Maturity Scale

TEACHER Estimate of Subjects Functioning Range

X

1964 1965 1966 1967 1968 1969 1970 1971 1972 May 1973

Time (years and months) from Birth to May, 1973

——— Measured change line from birth to time of Diagnostic School evaluation
— — — — Projected change line from the time of Diagnostic School evaluation to May, 1973
□ Each square equals 2 months

y

FUNCTIONING LEVEL CHANGE CHART

Case # 7
CA (May 73) 6-5

PSYCHOMETRIC ASSESSMENT SCORES

5 years — 0 months
4 years — 0 months
3 years — 0 months
2 years — 0 months
1 year — 0 months

FUNCTIONING LEVEL RANGE SCORES
X Cattell Infant Intelligence
○ Maxfield - Buchholz SMS
□ Preschool Attainment Record
\+ Vineland Social Maturity Scale

TEACHER Estimate of Subjects Functioning Range

1964 1965 1966 1967 1968 1969 1970 1971 1972 May 1973

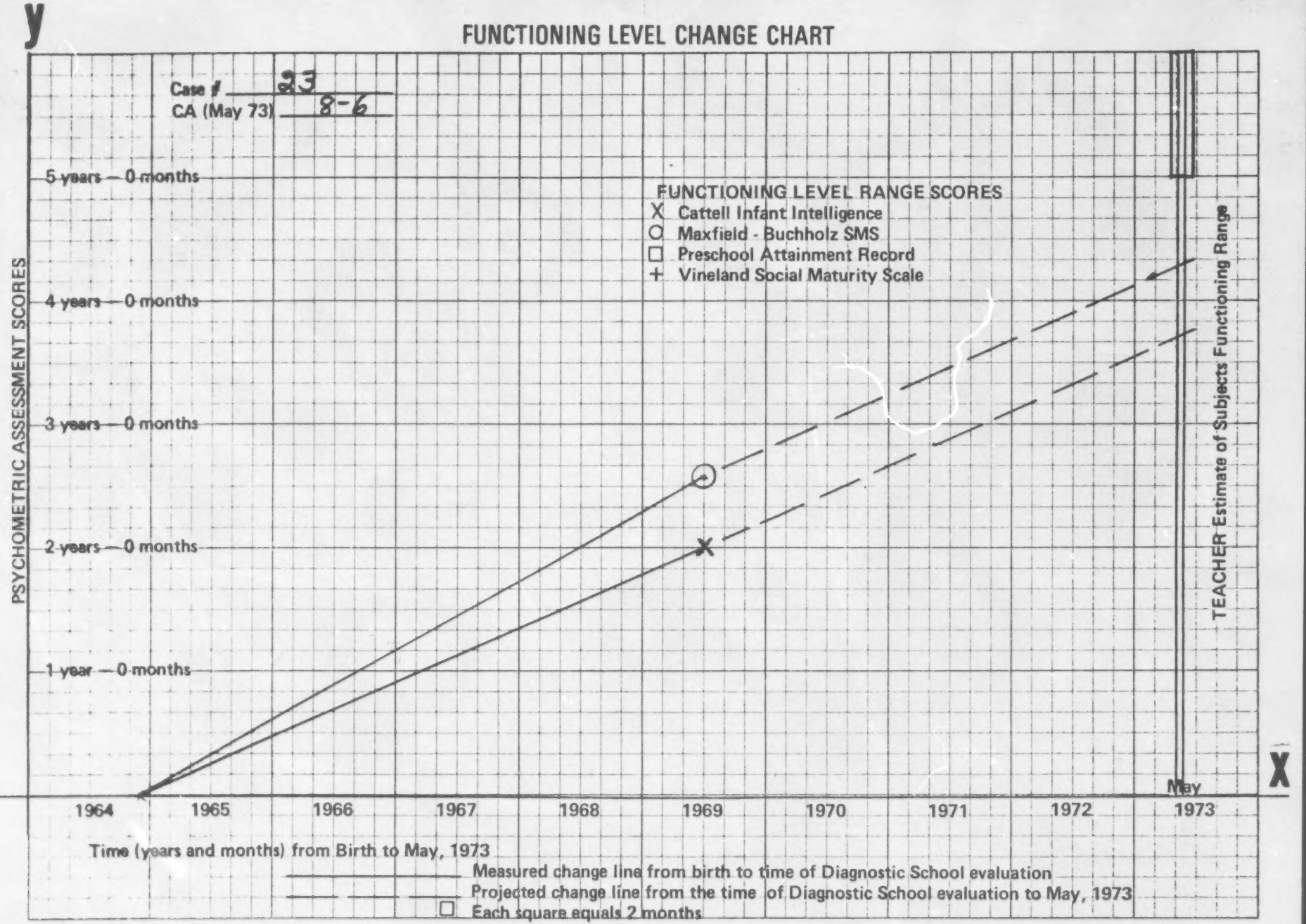
Time (years and months) from Birth to May, 1973

———— Measured change line from birth to time of Diagnostic School evaluation
— — — — Projected change line from the time of Diagnostic School evaluation to May, 1973
□ Each square equals 2 months

X

8

82


y
FUNCTIONING LEVEL CHART
Case # 23
CA (May 73) 8-6
5 years — 0 months
4 years — 0 months
3 years — 0 months
2 years — 0 months
1 year — 0 months
PSYCHOMETRIC ASSESSMENT SCORES
FUNCTIONING LEVEL RANGE SCORES
X Cattell Infant Intelligence
O Maxfield - Buchholz SMS
□ Preschool Attainment Record
+ Vineland Social Maturity Scale
TEACHER Estimate of Subjects Functioning Range
X
May
1964
1965
1966
1967
1968
1969
1970
1971
1972
1973
Time (years and months) from Birth to May, 1973
Measured change line from birth to time of Diagnostic School evaluation
Projected change line from the time of Diagnostic School evaluation to May, 1973
Each square equals 2 months

FUNCTIONING LEVEL CHANGE CHART

Case # 29
CA (May 73) 8-6

PSYCHOMETRIC ASSESSMENT SCORES

5 years — 0 months
4 years — 0 months
3 years — 0 months
2 years — 0 months
1 year — 0 months

FUNCTIONING LEVEL RANGE SCORES
X Cattell Infant Intelligence
O Maxfield - Buchholz SMS
□ Preschool Attainment Record
+ Vineland Social Maturity Scale

TEACHER Estimate of Subjects Functioning Range

1964 1965 1966 1967 1968 1969 1970 1971 1972 May 1973

Time (years and months) from Birth to May, 1973

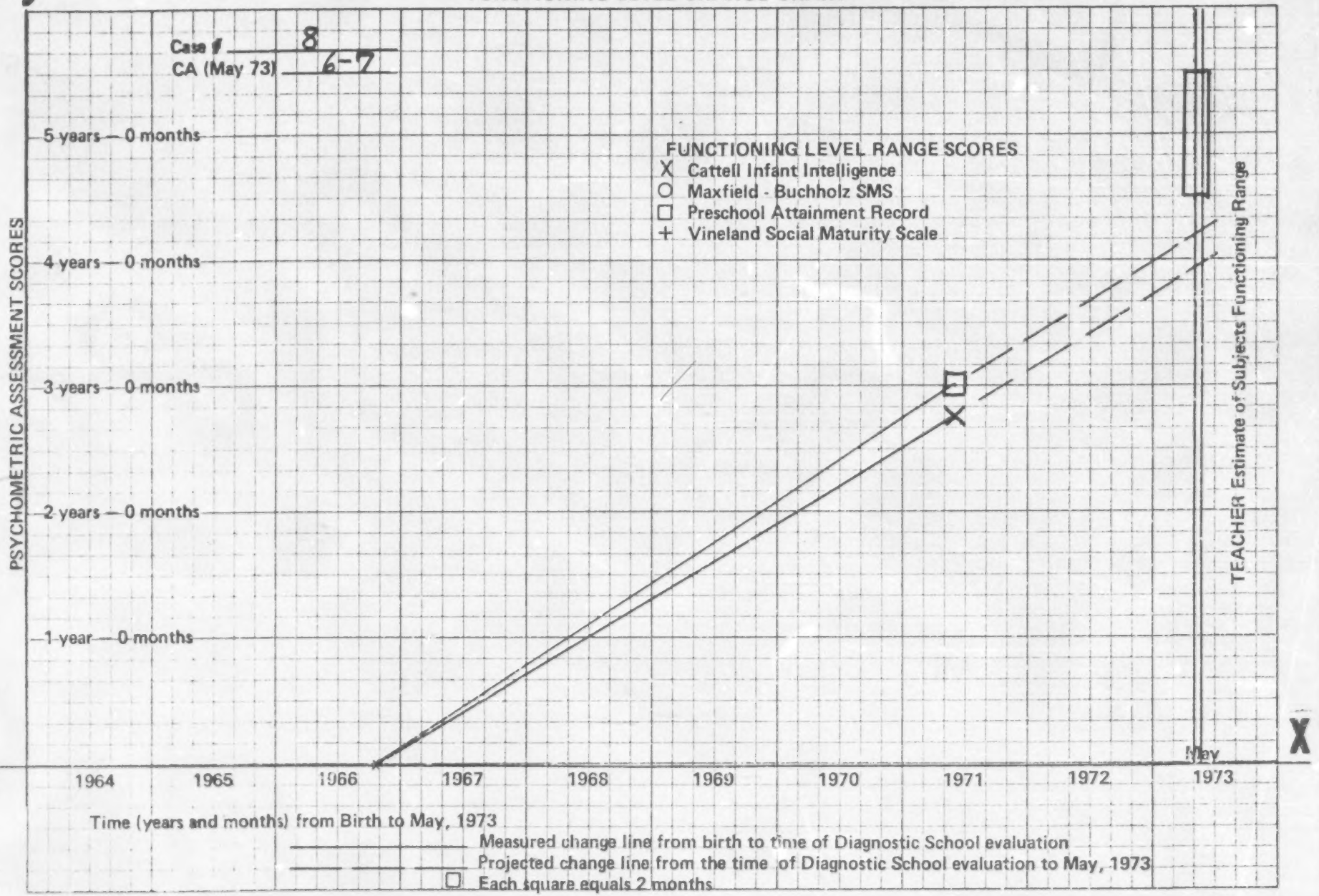
Measured change line from birth to time of Diagnostic School evaluation
Projected change line from the time of Diagnostic School evaluation to May, 1973
Each square equals 2 months

y

FUNCTIONING LEVEL CHANGE CHART

Case # 8

CA (May 73) 6-7

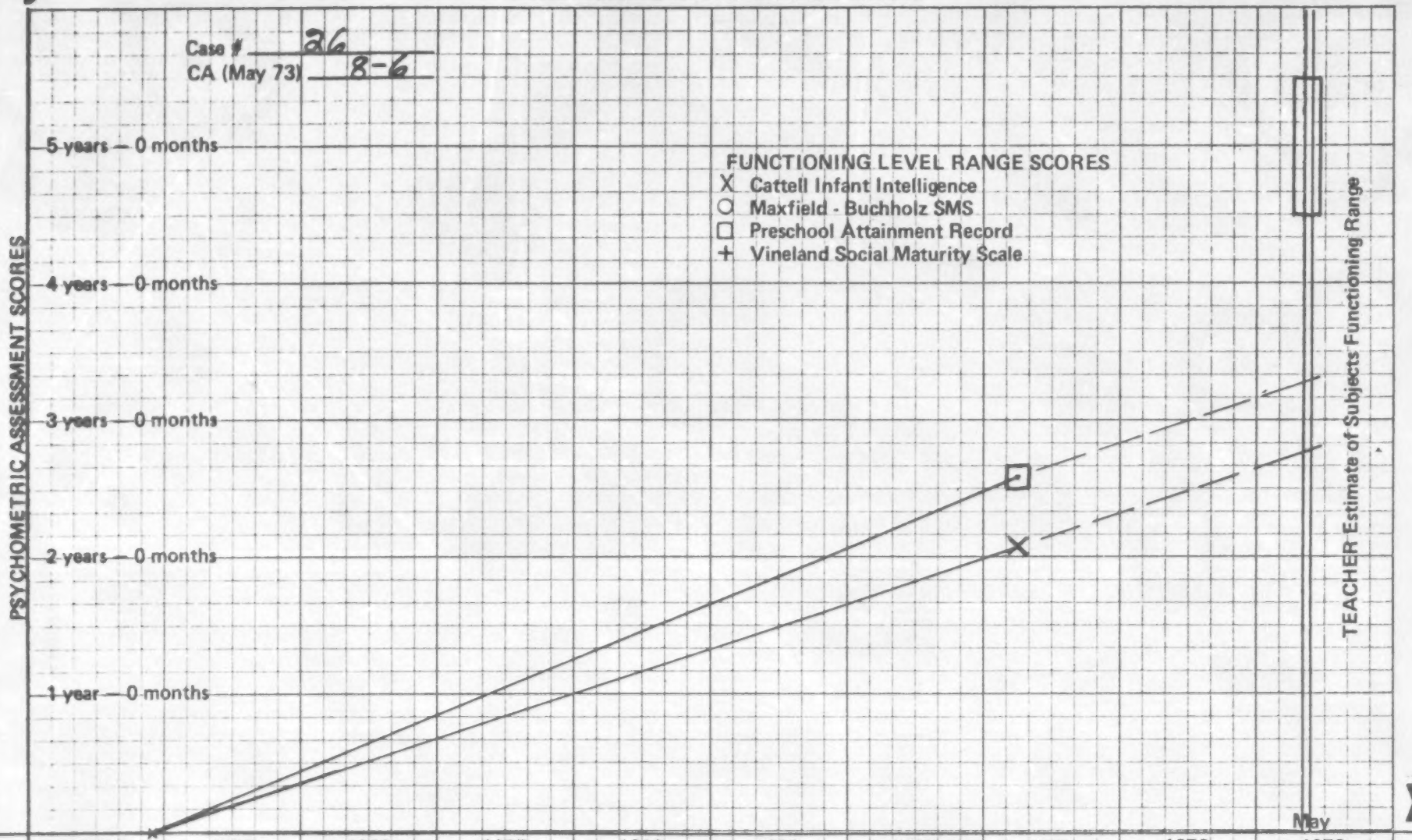


X

y

FUNCTIONING LEVEL CHANGE CHART

Case # 26
CA (May 73) 8-6



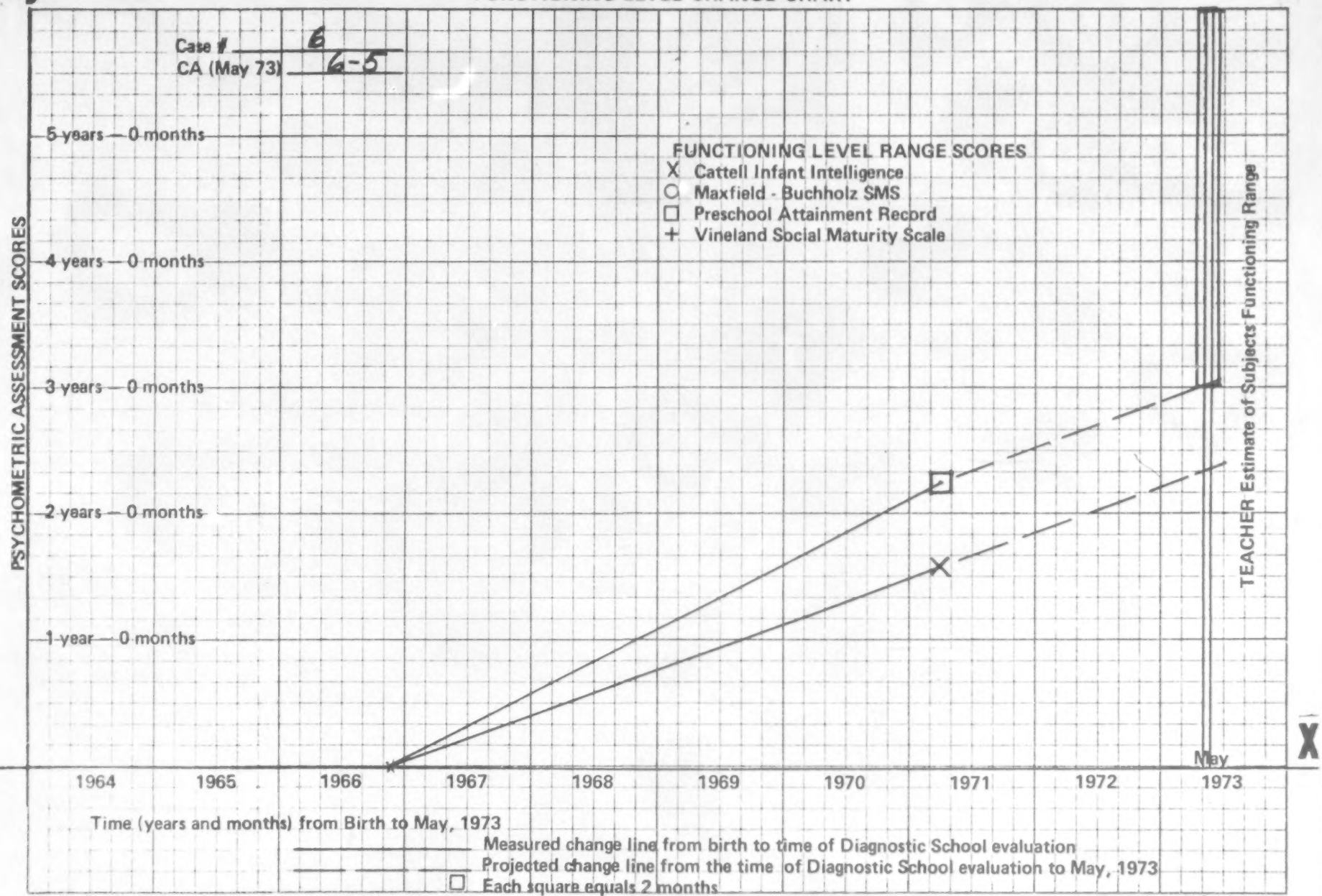
X

89

y

FUNCTIONING LEVEL CHART

Case # 6
CA (May 73) 6-5



X

y

FUNCTIONING LEVEL CHANGE CHART

Case # 24
CA (May 73) 9-1

PSYCHOMETRIC ASSESSMENT SCORES

5 years — 0 months
4 years — 0 months
3 years — 0 months
2 years — 0 months
1 year — 0 months

FUNCTIONING LEVEL RANGE SCORES
X Cattell Infant Intelligence
○ Maxfield - Buchholz SMS
□ Preschool Attainment Record
+ Vineland Social Maturity Scale

TEACHER Estimate of Subjects Functioning Range

1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 May

Time (years and months) from Birth to May, 1973

——— Measured change line from birth to time of Diagnostic School evaluation
— — — Projected change line from the time of Diagnostic School evaluation to May, 1973
□ Each square equals 2 months

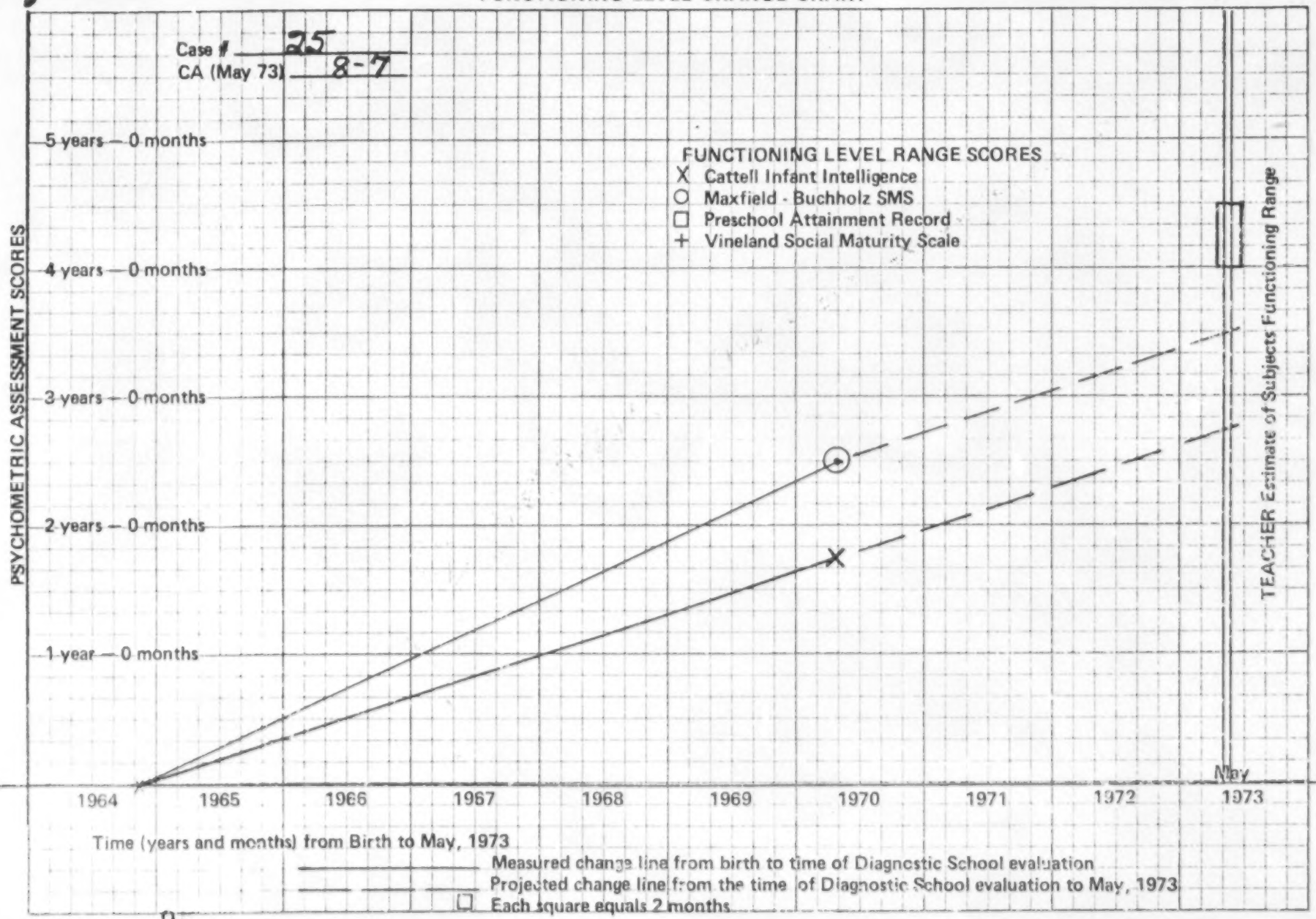
X

93

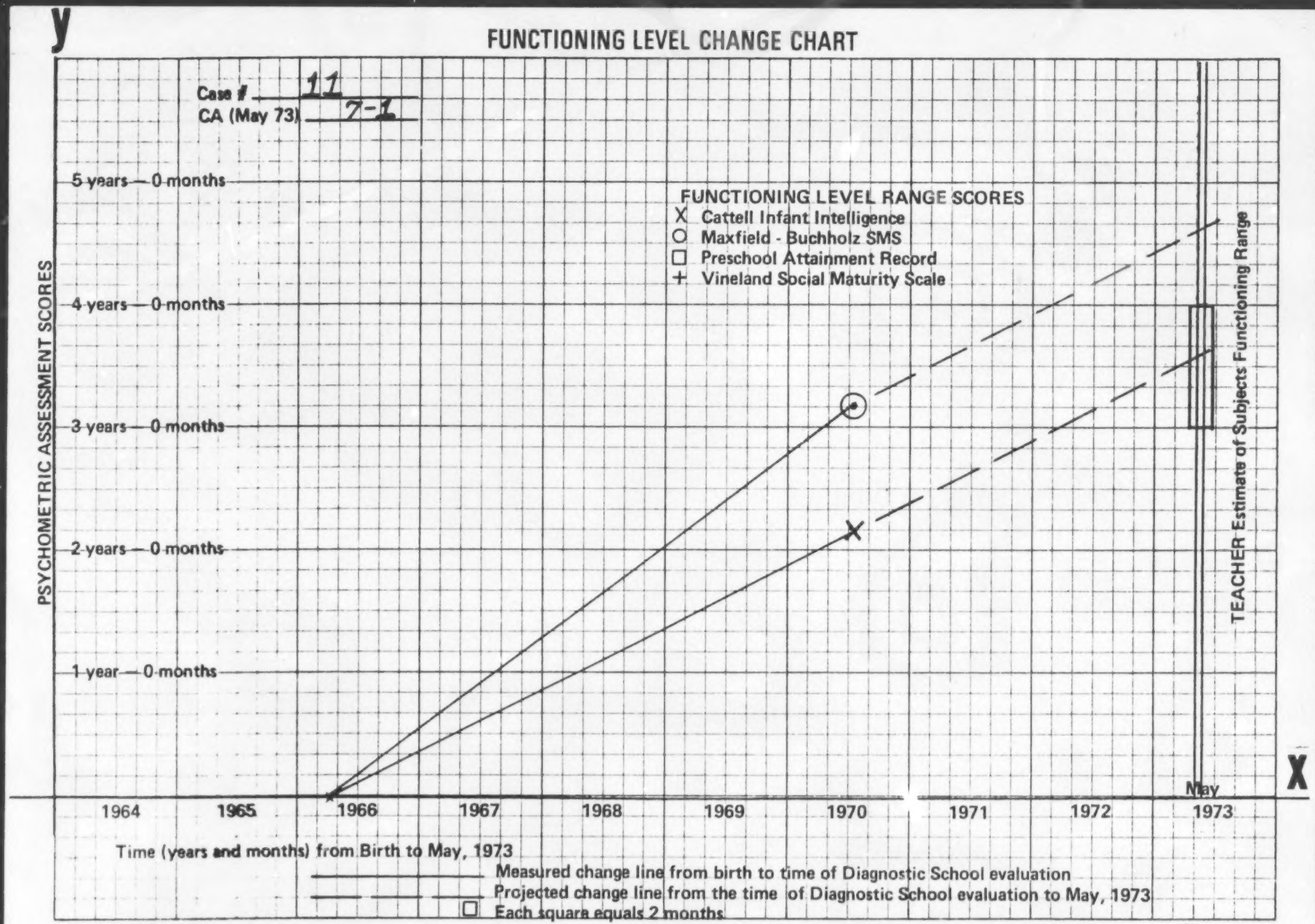
9.1

y

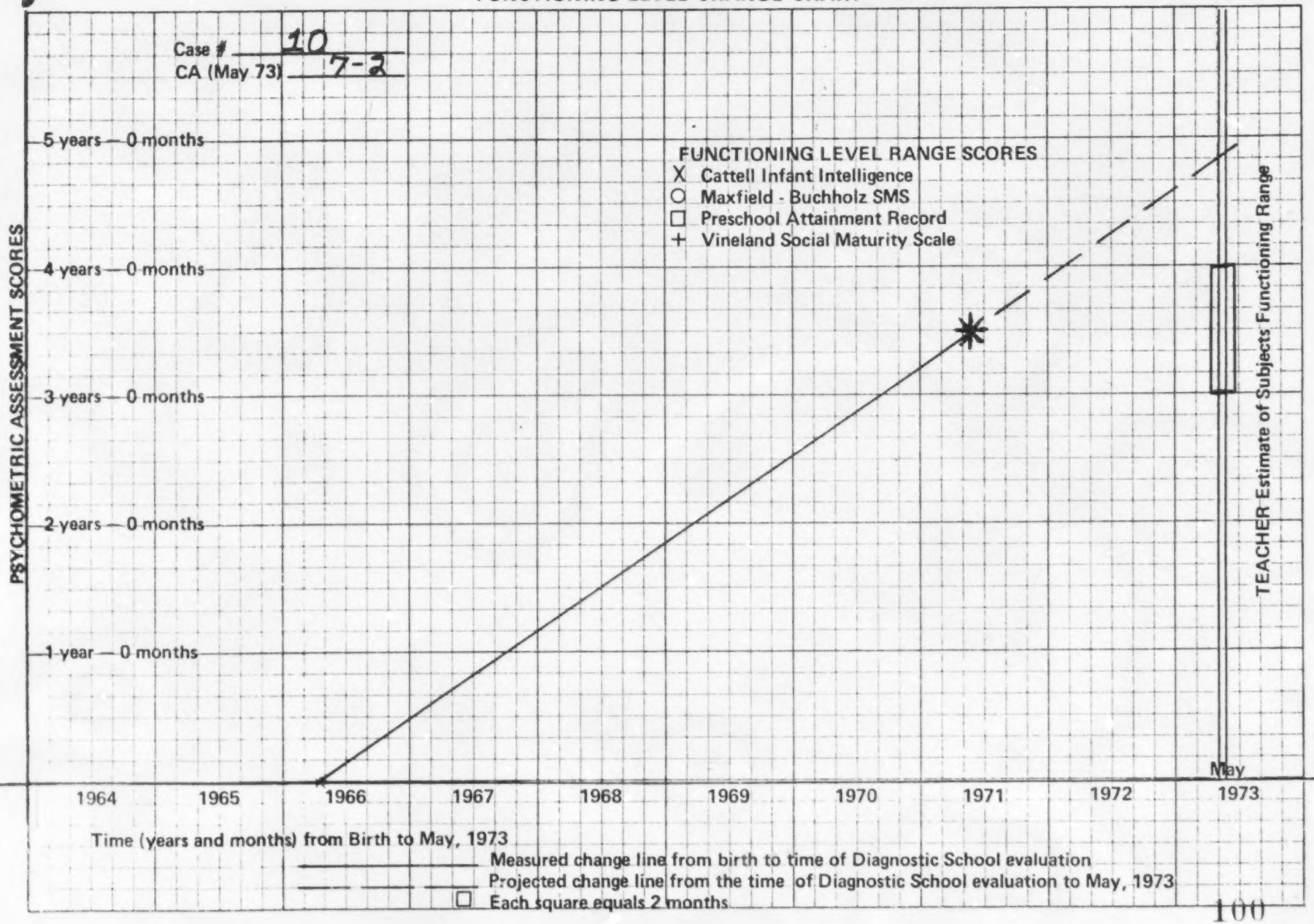
FUNCTIONING LEVEL CHART



X


y
FUNCTIONING LEVEL CHANGE CHART
Case # 11
CA (May 73) 7-1
5 years — 0 months
4 years — 0 months
3 years — 0 months
2 years — 0 months
1 year — 0 months
PSYCHOMETRIC ASSESSMENT SCORES
FUNCTIONING LEVEL RANGE SCORES
X Cattell Infant Intelligence
O Maxfield - Buchholz SMS
□ Preschool Attainment Record
+ Vineland Social Maturity Scale
TEACHER Estimate of Subjects Functioning Range
X
May
1964
1965
1966
1967
1968
1969
1970
1971
1972
1973
Time (years and months) from Birth to May, 1973
Measured change line from birth to time of Diagnostic School evaluation
Projected change line from the time of Diagnostic School evaluation to May, 1973
Each square equals 2 months

FUNCTIONING LEVEL CHANGE CHART



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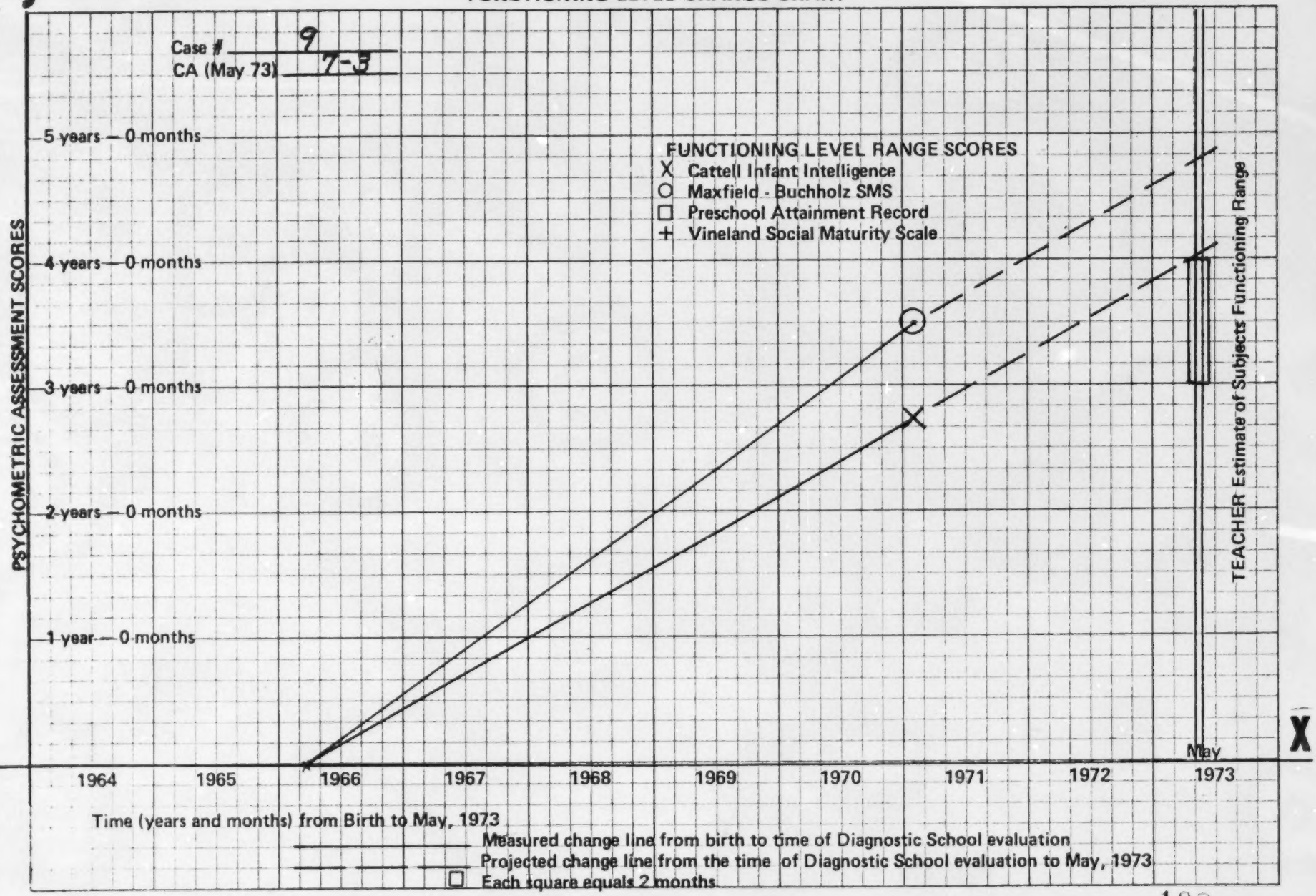


y

FUNCTIONING LEVEL CHANGE CHART

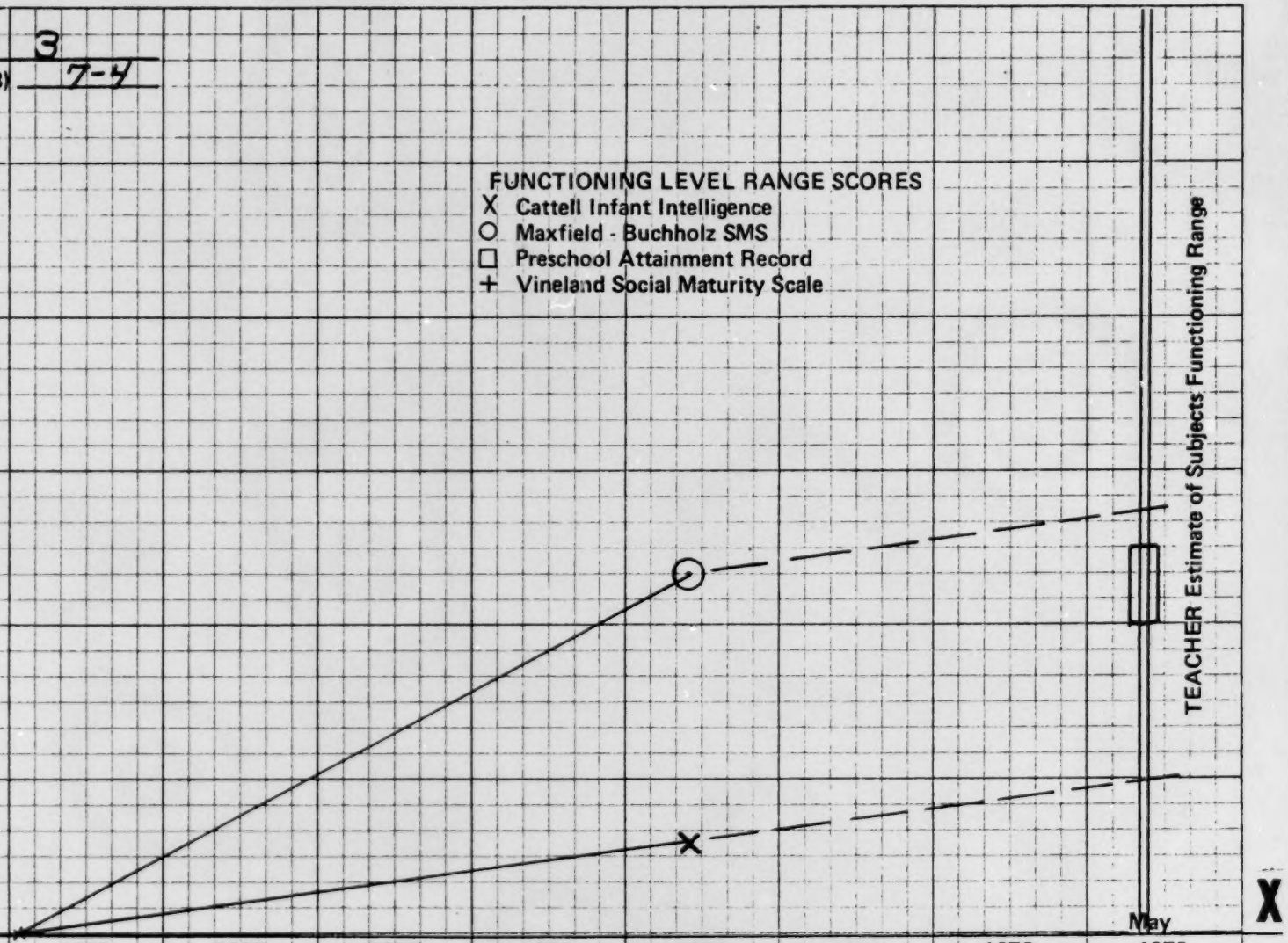
Case # 3
CA (May 73) 7-4

PSYCHOMETRIC ASSESSMENT SCORES

5 years — 0 months
4 years — 0 months
3 years — 0 months
2 years — 0 months
1 year — 0 months

FUNCTIONING LEVEL RANGE SCORES
X Cattell Infant Intelligence
○ Maxfield - Buchholz SMS
□ Preschool Attainment Record
\+ Vineland Social Maturity Scale

TEACHER Estimate of Subjects Functioning Range



X

1964 1965 1966 1967 1968 1969 1970 1971 1972 1973

Time (years and months) from Birth to May, 1973

——— Measured change line from birth to time of Diagnostic School evaluation
— — — Projected change line from the time of Diagnostic School evaluation to May, 1973
□ Each square equals 2 months

y

FUNCTIONING LEVEL CHART

Case # 5

CA (May 73) 6-8

PSYCHOMETRIC ASSESSMENT SCORES

5 years — 0 months

4 years — 0 months

3 years — 0 months

2 years — 0 months

1 year — 0 months

FUNCTIONING LEVEL RANGE SCORES

X Cattell Infant Intelligence

O Maxfield - Buchholz SMS

□ Preschool Attainment Record

\+ Vineland Social Maturity Scale

TEACHER Estimate of Subjects Functioning Range

X

1964 1965 1966 1967 1968 1969 1970 1971 1972 May 1973

Time (years and months) from Birth to May, 1973

Measured change line from birth to time of Diagnostic School evaluation

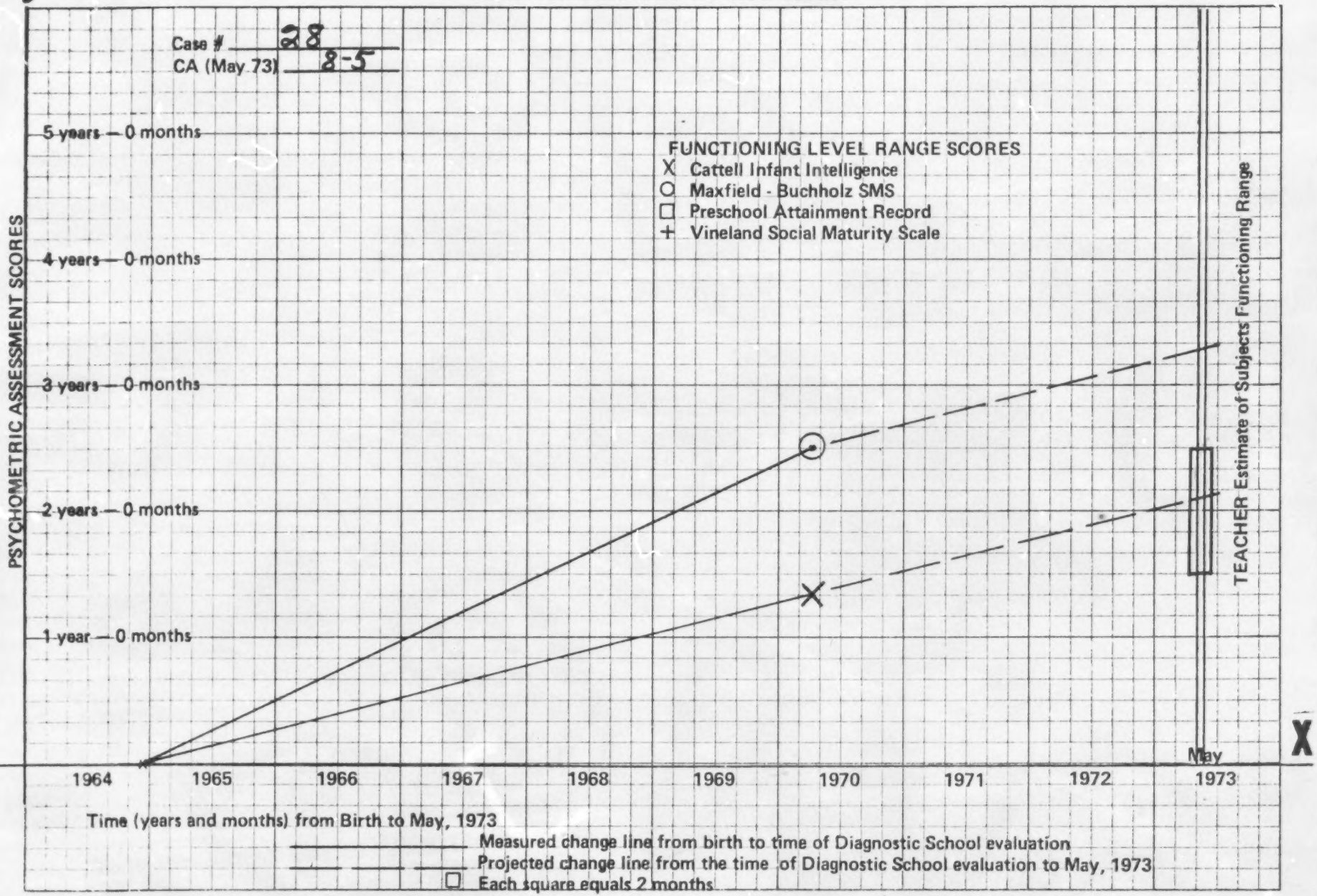
Projected change line from the time of Diagnostic School evaluation to May, 1973

□ Each square equals 2 months

y

FUNCTIONING LEVEL CHANGE CHART

Case # 28
CA (May 73) 8-5

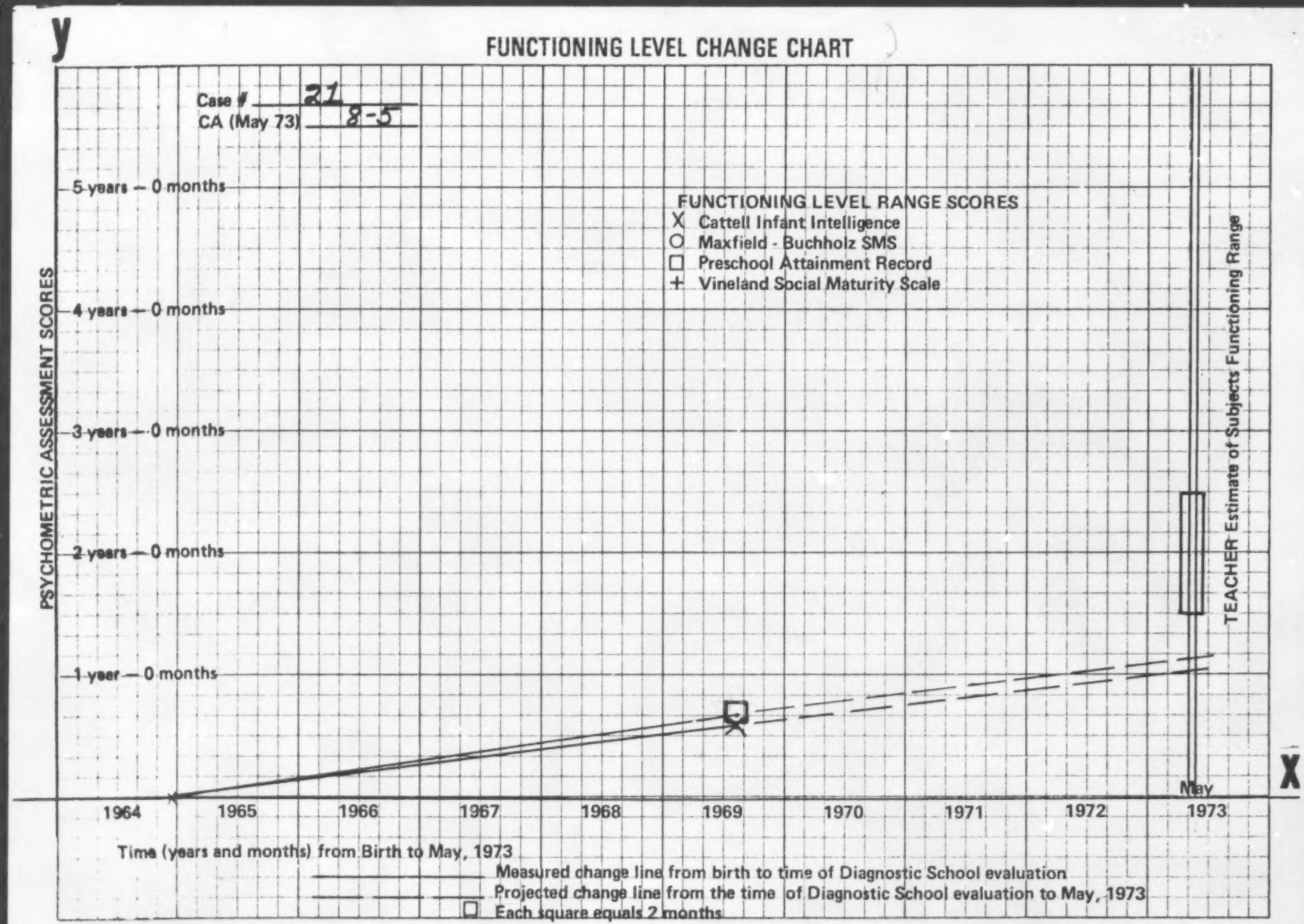


Time (years and months) from Birth to May, 1973

Measured change line from birth to time of Diagnostic School evaluation

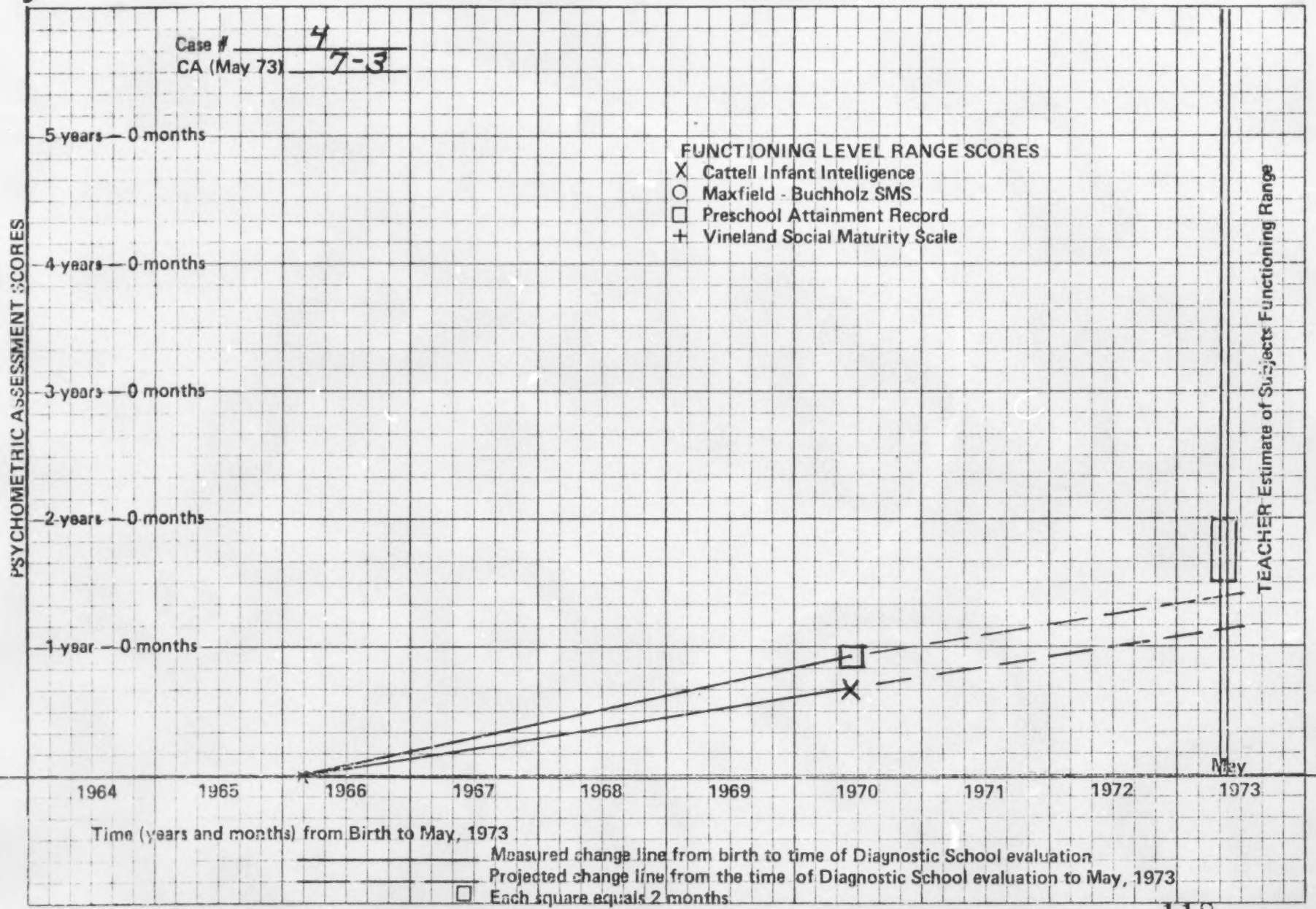
Projected change line from the time of Diagnostic School evaluation to May, 1973

□ Each square equals 2 months


y
FUNCTIONING LEVEL CHANGE CHART
Case # 21
CA (May 73) 8-5
5 years — 0 months
4 years — 0 months
3 years — 0 months
2 years — 0 months
1 year — 0 months
PSYCHOMETRIC ASSESSMENT SCORES
FUNCTIONING LEVEL RANGE SCORES
X Cattell Infant Intelligence
O Maxfield - Buchholz SMS
□ Preschool Attainment Record
+ Vineland Social Maturity Scale
TEACHER Estimate of Subjects Functioning Range
X
1964
1965
1966
1967
1968
1969
1970
1971
1972
May
1973
Time (years and months) from Birth to May, 1973
Measured change line from birth to time of Diagnostic School evaluation
Projected change line from the time of Diagnostic School evaluation to May, 1973
Each square equals 2 months

y

FUNCTIONING LEVEL CHART



X

y

FUNCTIONING LEVEL CHANGE CHART

Case # 22
CA (May 73) 8-6

PSYCHOMETRIC ASSESSMENT SCORES

5 years — 0 months
4 years — 0 months
3 years — 0 months
2 years — 0 months
1 year — 0 months

FUNCTIONING LEVEL RANGE SCORES
X Cattell Infant Intelligence
O Maxfield - Buchholz SMS
□ Preschool Attainment Record
+ Vineland Social Maturity Scale

TEACHER Estimate of Subjects Functioning Range

X

1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 May

Time (years and months) from Birth to May, 1973

——— Measured change line from birth to time of Diagnostic School evaluation
— — — Projected change line from the time of Diagnostic School evaluation to May, 1973
□ Each square equals 2 months

y

FUNCTIONING LEVEL CHANGE CHART

Case # 2
CA (May 73) 7-4

PSYCHOMETRIC ASSESSMENT SCORES

5 years — 0 months
4 years — 0 months
3 years — 0 months
2 years — 0 months
1 year — 0 months

FUNCTIONING LEVEL RANGE SCORES
X Cattell Infant Intelligence
○ Maxfield - Buchholz SMS
□ Preschool Attainment Record
\+ Vineland Social Maturity Scale

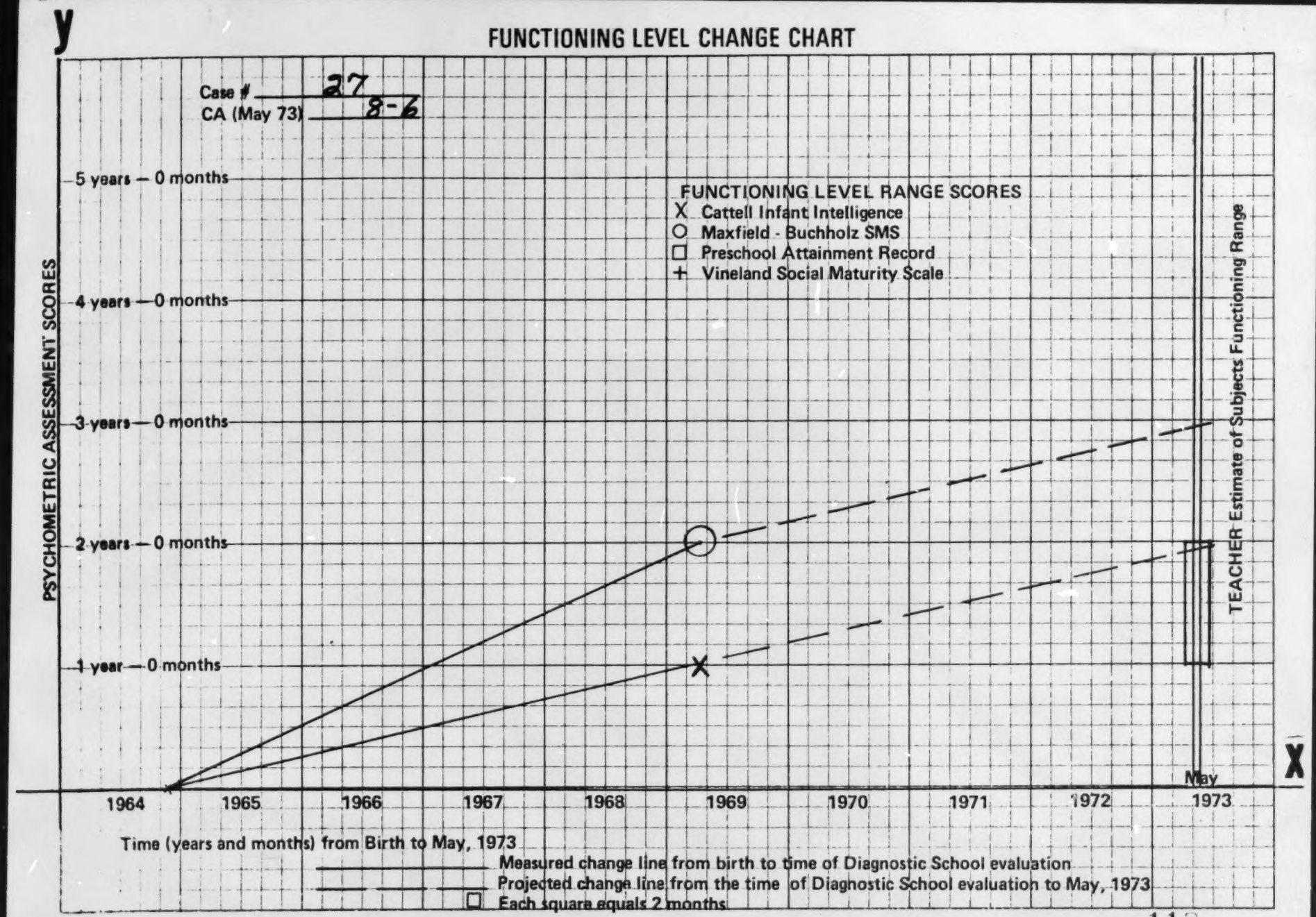
TEACHER Estimate of Subjects Functioning Range

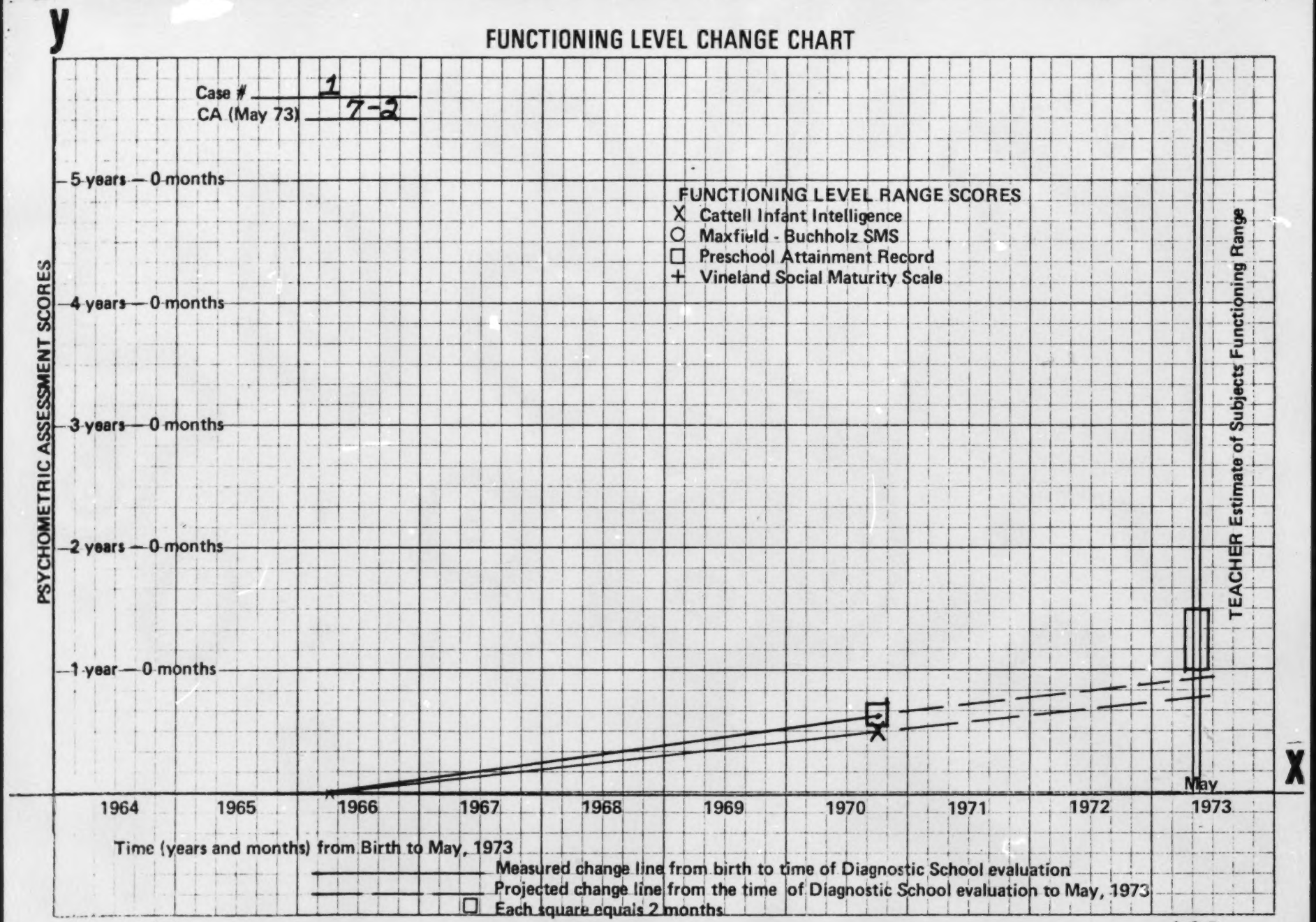
X

1964 1965 1966 1967 1968 1969 1970 1971 1972 May 1973

Time (years and months) from Birth to May, 1973

——————— Measured change line from birth to time of Diagnostic School evaluation
— — — — — Projected change line from the time of Diagnostic School evaluation to May, 1973
□ Each square equals 2 months


y
FUNCTIONING LEVEL CHANGE CHART
Case # 27
CA (May 73) 8-6
5 years — 0 months
4 years — 0 months
3 years — 0 months
2 years — 0 months
1 year — 0 months
PSYCHOMETRIC ASSESSMENT SCORES
FUNCTIONING LEVEL RANGE SCORES
X Cattell Infant Intelligence
O Maxfield - Buchholz SMS
□ Preschool Attainment Record
+ Vineland Social Maturity Scale
TEACHER Estimate of Subjects Functioning Range
X̄
1964
1965
1966
1967
1968
1969
1970
1971
1972
May
1973
Time (years and months) from Birth to May, 1973
Measured change line from birth to time of Diagnostic School evaluation
Projected change line from the time of Diagnostic School evaluation to May, 1973
Each square equals 2 months


y
FUNCTIONING LEVEL CHANGE CHART
Case # 1
CA (May 73) 7-2
5 years — 0 months
4 years — 0 months
3 years — 0 months
2 years — 0 months
1 year — 0 months
PSYCHOMETRIC ASSESSMENT SCORES
FUNCTIONING LEVEL RANGE SCORES
X Cattell Infant Intelligence
O Maxfield - Buchholz SMS
□ Preschool Attainment Record
+ Vineland Social Maturity Scale
TEACHER Estimate of Subjects Functioning Range
May
X
1964
1965
1966
1967
1968
1969
1970
1971
1972
1973
Time (years and months) from Birth to May, 1973
Measured change line from birth to time of Diagnostic School evaluation
Projected change line from the time of Diagnostic School evaluation to May, 1973
Each square equals 2 months